

# CURRICULUM VITAE

University of Idaho

**NAME:** Jan U.H. Eitel

**DATE:** 01/04/2024

**RANK OR TITLE:** Associate Professor

**DEPARTMENT:** Natural Resources and Society

**OFFICE LOCATION AND CAMPUS ZIP:** McCall Field Campus

**OFFICE PHONE:** (208) 596 9277

**FAX:** (208) 885-7952

**EMAIL:** jeitel@uidaho.edu

**WEB:** <https://www.uidaho.edu/cnr/faculty/eitel-j>

**DATE OF FIRST EMPLOYMENT AT UI:** 2009

**DATE OF TENURE:** June 2022

**DATE OF PRESENT RANK OR TITLE:** June 2022

## EDUCATION BEYOND HIGH SCHOOL:

- 2006-2008      **PhD:** Natural Resources, Department of Forest Resources, University of Idaho  
**Advisors:** Dr. Paul Gessler, Dr. Daniel Long, Dr. Raymond Hunt Jr., and Dr. Lee Vierling  
**Foci:** Remote Sensing, Precision Agriculture, Nitrogen in Agricultural Systems, Spatial Modeling  
**Dissertation:** *'Remote Sensing of Wheat Nitrogen Status for Improved Protein Management in Dryland Systems'*
- 2004-2005      **MSc:** Forestry, Department of Forest Resources, University of Idaho, Moscow, Idaho  
**Advisors:** Dr. Paul Gessler, Dr. Alistair Smith, and Dr. Ronald Robberecht  
**Foci:** Remote Sensing, Plant water relations  
**Thesis:** *'Suitability of Existing and Novel Spectral Indices to Remotely Detect Water Stress in Populus Spp.'*
- 2002-2003      **BSc:** Forestry, Department of Forest Resources, University of Idaho, Moscow, Idaho  
**Advisor:** Dr. Steven Brunsfeld  
**Foci:** Forestry, Remote Sensing, GIS
- 1999-2002      **Pregraduate Degree (Diplom-Vorprüfung):** Forestry, Fakultät für Forst- und Umweltwissenschaften, Albert-Ludwigs-Universität Freiburg, Germany  
**Focus:** Forest Ecology and Management

## EXPERIENCE:

- 2022 – current      Associate Professor, Natural Resources and Society, University of Idaho, Moscow, Idaho
- 2022- 2022      Research Fellow, Swiss Federal Institute for Forest, Snow, and Landscape, Birmensdorf, Switzerland
- 2018-2022      Assistant Professor, Natural Resources and Society, University of Idaho, Moscow, Idaho
- 2018      Research Associate Professor, Department of Natural Resources and Society, University of Idaho, Moscow, Idaho
- 2012-2018      Research Assistant Professor, Department of Forest, Rangeland, and Fire Sciences, University of

	Idaho, Moscow, Idaho
2010-	Science Faculty, McCall Outdoor Science School, University of Idaho Field Campus, McCall, Idaho
2010-2012	Research Scientist, Department of Forest Ecology and Biogeosciences, University of Idaho, Moscow, Idaho
2009-2010	Postdoctoral Scholar, Department of Forest Ecology and Biogeosciences, University of Idaho, Moscow, Idaho
2006-2008	Research and Teaching Assistant (PhD), Department of Forest Resources, University of Idaho, Moscow, Idaho
2006-2008	Research Assistant, Agricultural Research Service, Columbia Plateau Conservation Research Center, Pendleton, Oregon
2004-2005	Research and Teaching Assistant (MSc), Department of Forest Resources, University of Idaho, Moscow, Idaho
2001	Forest Technician Intern, Thurn und Taxis Forstbetrieb Ebnat, Ebnat, Germany
1999	Forest Technician Intern, Forstverwaltung Mayr-Melnhof, Salzburg, Austria
1998	Lance Corporal, 4th Transportation Battalion 10, Ellwangen, Germany

## TEACHING ACCOMPLISHMENTS:

### Areas of Specialization:

Ecology, Remote Sensing, Precision Agriculture

### Courses Taught:

ENVS 411/511: *Data Wizardry for Environmental Science* (3 cr.), Fall 2022 - current  
 ENVS 404/504: *Data Wizardry for Environmental Science* (2 cr.), Fall 2021  
 ENVS 404/504: *Research Methods for Environmental Science* (1 cr.), Fall 2021  
 NRS 478/578: *Optical and lidar remote sensing for natural resource professionals* (3 cr.), Spring 2021 - current  
 NRS 566: *Advanced Field Ecology Course Design*, Spring 2013, 2014, 2016 (5 cr.) (two sections, co-taught with Dr. K. Eitel)  
 NRS 566: Winter ecology (Place-based ecology II), Spring 2022-current  
 NRS 560: *Placed-based Ecology I*, Fall 2010 - current (4 cr.) (two sections)  
 NRS 563: *Teaching environmental education in a winter environment*, Spring 2017 (2 cr.) (two sections)  
 NRS 562: *Field Science Teaching*, Fall 2015, 2016 (2 cr.) (co-taught with MOSS faculty)  
 NRS 505: *Geospatial Tools for Educators*, Summer 2011 (1 cr.)  
 NRS 504: *Socio-Ecological Systems: An Integrated Approach I* (1 cr.), Fall 2017 - current (two sections, co-taught with Drs. K. Eitel, Wolfenden, and Cohn)  
 NRS 504: *Socio-Ecological Systems: An Integrated Approach II* (1 cr.), Spring 2018 - current (two sections, co-taught with Drs. K. Eitel, Wolfenden and Cohn)  
 ENVS 404/504: *Data Wizardry for Environmental Educators* (1 cr.), Summer 2021 – current  
 FOR 503: *Introduction to R Software*, Fall 2011 (1 cr.) (two sections)  
 NRS 502: *Remote Sensing and GIS for Ecologists*, Fall 2016 (1 cr.)  
 NRS 503: *Introduction to Data Analysis and Visualization in R*, Fall 2017, Fall 2018, Fall 2020 (1 cr.)  
 FOR 102: *Introduction to Forest Management*, Spring 2014, 2015, 2016 (1 cr.) (responsible for teaching 3 day field trip)  
 NR 101: *Exploring Natural Resources*, Summer 2013 (1 cr.)

### Students Advised:

Undergraduate Students: ---

Graduate Students:

Eli Estey, PhD student, University of Idaho, major advisor, 2021 – current  
Johanna Jensen, PhD student, Columbia University, committee member, 2018 - 2023  
Sarah Bruner, PhD student, Columbia University, committee member, 2020 - 2023  
Amanda Villwock, MS student, University of Idaho, committee member, 2021-2023  
William Weygint, MS student, University of Idaho, major advisor, 2020 – 2022  
Josh Miller, MNR student, University of Idaho, major advisor, 2020-2021  
Dylan Porter, MNR student, University of Idaho, major advisor, 2020-2021  
Andrew Maguire, PhD student, University of Idaho, major advisor, 2016 - 2020  
Micah Russell, PhD student, University of Idaho, major advisor, 2016 - 2020  
Jyoti Jennewein, PhD student, University of Idaho, major advisor, 2016 - 2020  
Heather Greaves, PhD student, University of Idaho, major advisor, 2013 - 2017  
Sarah Gould Bruner, PhD student, Columbia University, committee member, 2019 – current  
Johanna Jensen, PhD student, Columbia University, committee member, 2016 - current  
Erik Boren, PhD student, University of Idaho, committee member, 2017- current  
Marcy Carter, PhD student, University of Idaho, committee member, 2018- current  
Sarah Scholes, PhD student, University of Idaho, committee member, 2020 – current  
Ryer Becker, PhD student, University of Idaho, committee member, 2019 – current  
Rachel Stein, PhD student, University of Idaho, committee member, 2019 – current  
Torrey Stephenson, MS student, University of Idaho, committee member, 2021 – current  
Heather Crawford, MS student, University of Idaho, committee member, 2020 - current  
Peter Schlesinger, PhD student, University of Idaho, PhD committee member, 2014 – 2017  
Vincent Janson, PhD student, University of Idaho, PhD committee member, 2015- 2018  
Troy Magney, PhD student, University of Idaho, co-major advisor, 2011- 2015  
Mark Corrao, PhD student, University of Idaho, PhD committee member, 2013 – 2015  
Dan Krofcheck, PhD student, University of New Mexico, PhD committee member, 2011 – 2014  
Dylan Porter, MNR student, University of Idaho, major advisor, 2020 – current  
Josh Miller, MNR student, University of Idaho, major advisor, 2020 – current  
Mark Shepard, MNR student, University of Idaho, major advisor, 2019 – 2020  
Hali Goodrich, MNR student, University of Idaho, major advisor, 2019 – 2020  
Josh Heaton, MNR student, University of Idaho, major advisor, 2019 – 2020  
Mitchell Gage, MNR student, University of Idaho, major advisor, 2019 – 2020  
Susan Vance, MNR student, University of Idaho, major advisor, 2019  
Kate Job, MNR student, University of Idaho, major advisor, 2018 – 2019  
Kailee McKinney, University of Idaho, major advisor, 2018 – 2019  
Maison Power, University of Idaho, major advisor, 2018 – 2019  
Emma Woodworth, University of Idaho, major advisor, 2018 – 2019  
Daniel Lay, MNR student, University of Idaho, major advisor, 2017 - 2018  
Rachel Farrow, MNR student, University of Idaho, major advisor, 2017 - 2018  
Mackenzie Durham, MNR student, University of Idaho, major advisor, 2017 - 2018  
Laura Beck, MNR student, University of Idaho, major advisor, 2017 - 2018  
Patrick Ryan, MNR student, University of Idaho, major advisor, 2017 - 2018  
Brent Chouanard, M.S. student, University of Idaho, major advisor, 2016 – 2017  
Rebecca Schroeder, M.S. student, University of Idaho, major advisor, 2016 - 2017  
Zachery Hall, M.S. student, University of Idaho, major advisor, 2016 - 2017  
Kayla Bordelon, M.S. student, University of Idaho, major advisor, 2016 - 2017  
Christopher Gutierrez, M.S. student, University of Idaho, major advisor, 2015 - 2016  
William Adicoff, M.S. student, University of Idaho, major advisor, 2015 - 2016  
Zoe Mroz, M.S. student, University of Idaho, major advisor, 2015 - 2016  
Wesley Koster, M.S. student, University of Idaho, major advisor, 2015 - 2016  
Nell Davis, M.S. student, University of Idaho, major advisor, 2015 - 2016  
Brian Lawless, M.S. student, University of Idaho, major advisor, 2015 - 2016  
Megan McAndrews, M.S. student, University of Idaho, committee member, 2014- 2016  
Jessica Sanow, M.S. student, University of Idaho, major advisor, 2015 - 2016  
Andrew Trogstad-Isaacson, M.S. student, University of Idaho, major advisor, 2014- 2015  
Allyson Schaeffer, M.S. student, University of Idaho, major advisor, 2014- 2015  
Erica Guralnick, M.S. student, University of Idaho, major advisor, 2014- 2015  
Samuel Finch, M.S. student, University of Idaho, committee member, 2014 - 2015

Cessidy Comer, M.S. student, University of Idaho, major advisor, 2014- 2015  
 Lindsay Grayson, M.S. student, University of Idaho, committee member, 2014 – 2015  
 Matthew Yourek, M.S. student, University of Idaho, committee member, 2014 – 2015  
 James Casey, M.S. student, University of Idaho, committee member, 2014 – 2015  
 Dirk Anderson, M.S. student, University of Idaho, major advisor, 2013 - 2014  
 Ross Parsons, M.S. student, University of Idaho, major advisor, 2013 - 2014  
 Lauren Smith, M.S. student, major advisor, University of Idaho, 2012-2013

#### Visiting Scientists:

Dr. Jingjue Jiang, Computer School, Wuhan University, A519, Wuhan, Hubei 430072, China  
 Jingshan Lue, Ph.D. candidate, College of Agriculture, Nanjing Agricultural University

#### Materials Developed:

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#### Courses Developed:

ENVS 411/511: *Data Wizardry for Environmental Science* (3 cr.), Fall 2021 – current  
 NRS 504: *Introduction to Ecological data analysis* (1 cr.), Fall 2021 - current  
 NRS 560: *Placed-based ecology I* (4 cr., 2 Sections), Fall 2010 - current  
 NRS 566: Winter ecology (Place-based ecology II) (4 cr., 2 Sections), Spring 2022 - current  
 NRS 504: *Socio-Ecological Systems: An Integrated Approach I* (1cr., 2 Sections), Fall 2019 - current  
 NRS 504: *Socio-Ecological Systems: An Integrated Approach II* (1 cr., 2 Sections), Spring 2019 - current  
 NRS 478/578: *Optical and lidar remote sensing for natural resource professionals* (3 cr.), Spring 2021  
 ENVS 404/504: Research Methods for Environmental Science (1 cr.), Fall 2021  
 NRS 564: *Teaching environmental education in a winter environment (Placed based ecology II)* (4 cr.)  
 NRS 566: *Advanced Field Ecology Course Design* (5 cr.)  
 NRS 505: *Geospatial Tools for Educators* (1 cr.)  
 FOR 503: *Introduction to R Software* (1 cr.)  
 FOR 102: *Introduction to Forest Management* (1 cr.) (Developed 3-day field trip component)  
 NR 101: *Exploring Natural Resources* (1 cr.)

#### Non-credit Classes, Workshops, Seminars, Invited Lectures, etc.:

*Introduction to the R software environment for statistical computing and graphing* (Fall 2010, Fall 2012)

### SCHOLARSHIP ACCOMPLISHMENTS:

#### Publications, Exhibitions, Performances, Recitals:

##### Refereed/Adjudicated:

Eitel, K.B., Wheeler, A., Seven, K., Pinkham, J., Cavazos Cohn, T., Uh, C., White Temple, E., Davis, M., McFarland, J., **Eitel, J.U.H.** and Carter, M., **2023**. Culturally sustaining pedagogy in an outdoor environmental science education program to support high school students' identities as Indigenous people and scientists. *Journal of Geoscience Education*, pp.1-15.

**Eitel, J.U.H.**, Basler, D., Braun, S., Buchmann, N., D'Odorico, P., Etzold, S., Gessler, A., Griffin, K.L., Krejza, J., Luo, Y. and Maguire, A.J., **2023**. Towards monitoring stem growth phenology from space with high resolution satellite data. *Agricultural and Forest Meteorology*, 339, p.109549.

Lewis, S.A., Robichaud, P.R., Archer, V.A., Hudak, A.T., **Eitel, J.U.H.** and Strand, E.K., **2023**. Informing

Sustainable Forest Management: Remote Sensing Strategies for Assessing Soil Disturbance after Wildfire and Salvage Logging. *Forests*, 14(11), p.2218.

Zweifel, R., Pappas, C., Peters, R.L., Babst, F., Balanzategui, D., Basler, D., Bastos, A., Beloiu, M., Buchmann, N., Bose, A.K. and Braun, S., **Eitel, J.U.H.** et al. **2023**. Networking the forest infrastructure towards near real-time monitoring—A white paper. *Science of the Total Environment*, 872, p.162167.

Schmiege, S.C., Griffin, K.L., Boelman, N.T., Vierling, L.A., Bruner, S.G., Min, E., Maguire, A.J., Jensen, J. and **Eitel, J.U.H.**, **2023**. Vertical gradients in photosynthetic physiology diverge at the latitudinal range extremes of white spruce. *Plant, Cell & Environment*, 46(1), pp. 45-63.

Weygint, W.A., **Eitel, J.U.H.** et al. **2023**. Leaf temperatures and environmental conditions predict daily stem radial variations in a temperate coniferous forest. *Ecosphere*, DOI: 10.1002/ecs2.4465

Weygint, W.A., **Eitel, J.U.H.**, Maguire, A.J., Vierling, L.A., Griffin, K.L., Boelman, N.T. and Jensen, J.E., **2023**. Comparison of snow disappearance date estimates and tree stem radial growth onset at the forest-tundra ecotone. *Agricultural and Forest Meteorology*, 333, p.109388.

Chen, B.J., Teng, S.N., Zheng, G., Cui, L., Li, S.P., Staal, A., **Eitel, J.U.H.**, Crowther, T.W., Berdugo, M., Mo, L. and Ma, H., **2022**. Inferring plant-plant interactions using remote sensing. *Journal of Ecology*, 110(10), pp.2268-2287.

Schmiege, S.C.\*, Griffin, K.L., Boelman, N.T., Vierling, L.A., Bruner, S.G.\*, Min, E., Maguire, A.J., Jensen, J.\* and **Eitel, J.U.H.**, **2022**. Vertical gradients in photosynthetic physiology diverge at the latitudinal range extremes of white spruce. *Plant, Cell & Environment*, 46(1), pp.45-63.

Stein, R.M.\*, Lecigne, B., **Eitel, J.U.H.**, Johnson, T.R., McGowan, C. and Rachlow, J.L., **2022**. Vegetation and vantage point influence visibility across diverse ecosystems: Implications for animal ecology. *Frontiers in Ecology and Evolution*, p.823.

Griffin, K.L., Griffin, Z.M., Schmiege, S.C.\*, Bruner, S.G.\*, Boelman, N.T., Vierling, L.A. and **Eitel, J.U.H.**, **2022**. Variation in White spruce needle respiration at the species range limits: A potential impediment to Northern expansion. *Plant, Cell & Environment*

Maguire, A.J., **Eitel, J.U.H.**, Magney, T.S., Frankenberg, C., Köhler, P., Orcutt, E.L., Parazoo, N.C., Pavlick, R. and Pierrat, Z.A. **2021**. Spatial covariation between solar-induced fluorescence and vegetation indices from Arctic-Boreal landscapes. *Environmental Research Letters*, 16(9), p.095002.

Jennewein, J.S., **Eitel, J.U.H.**, Joly, K., Long, R.A., Maguire, A.J., Vierling, L.A. and Weygint, W. **2021**. Estimating integrated measures of forage quality for herbivores by fusing optical and structural remote sensing data. *Environmental Research Letters*.

Lewis, S.A., Robichaud, P.R., Hudak, A.T., Strand, E.K., **Eitel, J.U. H.**, Brown, R.E. **2021**. Evaluating the Persistence of Post-Wildfire Ash: A Multi-Platform Spatiotemporal Analysis. *Fire*, 4(4), p.68.

Griffin, K.L., Schmiege, S.C., Bruner, S.G., Boelman, N.T., Vierling, L.A. **Eitel, J.U.H.** **2021**. High Leaf Respiration Rates May Limit the Success of White Spruce Saplings growing in The Kampfzone at the Arctic Treeline. *bioRxiv*.

Russell, M., **Eitel, J.U.H.**, Link, T.E. and Silva, C.A. **2021**. Important Airborne Lidar Metrics of Canopy Structure for Estimating Snow Interception. *Remote Sensing*, 13(20), p.4188.

Lu, J., **Eitel, J.U.H.**, Jennewein, J.S., Zhu, J., Zheng, H., Yao, X., Cheng, T., Zhu, Y., Cao, W. Tian, Y., **2021**. Combining Remote Sensing and Meteorological Data for Improved Rice Plant Potassium Content Estimation. *Remote Sensing*, 13(17), p.3502.

Lu, J., **Eitel, J.U.H.**, Engels, M., Zhu, J., Ma, Y., Liao, F., Zheng, H., Wang, X., Yao, X., Cheng, T. and Zhu, Y., **2021**. Improving Unmanned Aerial Vehicle (UAV) remote sensing of rice plant potassium

accumulation by fusing spectral and textural information. *International Journal of Applied Earth Observation and Geoinformation*, 104, p.102592.

Tian, S., Zheng, G., **Eitel, J.U.E.**, Zhang, Q. **2021**. A Lidar-Based 3-D Photosynthetically Active Radiation Model Reveals the Spatiotemporal Variations of Forest Sunlit and Shaded Leaves. *Remote Sensing*, 13(5), 1002.

**Eitel, J.U.H.**, Kevin L. Griffin, Natalie T. Boelman, Andrew J. Maguire\*, Arjan JH Meddens, Johanna Jensen\*, Lee A. Vierling, Stephanie C. Schmiege\*, and Jyoti S. Jennewein\*. **2020**. Remote sensing tracks daily radial wood growth of evergreen needleleaf trees. *Global Change Biology*

Maguire, A.J.\*, **Eitel, J.U.H.**, Griffin, K.L., Troy S. Magney, et al. **2020**. On the Functional Relationship Between Fluorescence and Photochemical Yields in Complex Evergreen Needleleaf Canopies. *Geophysical Research Letters* 47, no. 9 (2020): e2020GL087858.

Davidson, S.C., Bohrer, G., Gurarie, E., LaPoint, S., Mahoney, P.J., Boelman, N.T., Eitel, **J.U.H.** et al. **2020**. Ecological insights from three decades of animal movement tracking across a changing Arctic. *Science* 370, no. 6517 (2020): 712-715.

Russell, M. \*, **Eitel, J.U.H.**, Andrew J Maguire\*, and Timothy E Link. **2020**. Toward a Novel Laser-Based Approach for Estimating Snow Interception. *Remote Sensing* 12, no. 7: 1146.

Lecigne, Bastien\*, **Eitel, J.U.H.**, and Janet L. Rachlow. **2020**. Viewshed3d: An R package for quantifying 3D visibility using terrestrial lidar data. *Methods in Ecology and Evolution* 11, no. 6: 733-738.

Jennewein, J.S., Hebblewhite, M., Mahoney, P., Gilbert, S., Meddens, A.J., Boelman, N.T., ... & **Eitel, J.U.H.** **2020**. Behavioral modifications by a large-northern herbivore to mitigate warming conditions. *Movement ecology*, 8(1), 1-14.

Jennewein, J.S.\*, **Eitel, J.U.H.**, Pinto, J. R., & Vierling, L.A. **2020**. Toward Mapping Dietary Fibers in Northern Ecosystems Using Hyperspectral and Multispectral Data. *Remote Sensing*, 12(16), 2579.

Russell, M.T.\*, Cartwright, J. M., Collins, G. H., Long, R. A., & **Eitel, J.U.H.** **2020**. Legacy Effects of Hydrologic Alteration in Playa Wetland Responses to Droughts. *Wetlands*, 1-14.

Dixon, R. A., Wheeler, A., Eitel, K., Davis, M. Eitel, J.U.H. **2020**. Using UAV in a Culturally Responsive STEM Curriculum. *Technology and Engineering Teacher*, 80(2)

Prager, C.M., Boelman, N.T., **Eitel, J.U.H.**, Gersony, J.T., Greaves, H.E., Heskell, M.A., ... & Griffin, K.L. **2020**. A mechanism of expansion: Arctic deciduous shrubs capitalize on warming-induced nutrient availability. *Oecologia*, 1-15.

Jansen, V. S., Kolden, C. A., Greaves, H. E., **Eitel, J.U.H.** **2019**. Lidar provides novel insights into the effect of pixel size and grazing intensity on measures of spatial heterogeneity in a native bunchgrass ecosystem. *Remote Sensing of Environment*, 235, 111432.

Greaves, H.E., **Eitel, J.U.H.**, Vierling, L.A., Boelman, N.T., Griffin, K.L., Magney, T.S., Prager, C.M., **2019**. 20 cm resolution mapping of tundra vegetation communities provides an ecological baseline for important research areas in a changing Arctic environment. *Environ. Res. Commun.* 1, 105004. doi:10.1088/2515-7620/ab4a85

Maguire, A.J., **Eitel, J.U.H.**, Vierling, L.A., Johnson, D.M., Griffin, K.L., Boelman, N.T., Jensen, J.E., Greaves, H.E., Arjan J.H. Meddens. **2019**. Terrestrial lidar scanning reveals fine-scale linkages between microstructure and photosynthetic functioning of small-stature spruce trees at the forest-tundra ecotone. *Agricultural and Forest Meteorology*, 269-270, 157-168.

**Eitel, J.U.H.**, Maguire, A.J., Boelman, N., Vierling, L.A., Griffin, K.L., Jensen, J., Magney, T.S., Mahoney, P.J., Meddens, A.J.H., Silva, C., Sonnentag, O. **2019**. Proximal remote sensing of tree physiology at northern treeline: Do late-season changes in the photochemical reflectance index (PRI) respond to climate or photoperiod? *Remote Sensing of Environment*, 221, 340-350.

Boelman, N., Liston, G.E., Gurarie, E., Meddens, A.J., Mahoney, P.J., Kirchner, P.B., Bohrer, G., Brinkman, T.J., Cosgrove, C.L., **Eitel, J.U.H.**, and Hebblewhite, M., **2019**. Integrating snow science and wildlife ecology in Arctic-boreal North America. *Environmental Research Letters*, 14.

Mahoney, P.J., Liston, G.E., LaPoint, S., Gurarie, E., Mangipane, B., Wells, A.G., Brinkman, T.J., **Eitel, J.U.H.**, Hebblewhite, M., Nolin, A.W. and Boelman, N., **2018**. Navigating snowscapes: scale-dependent responses of mountain sheep to snowpack properties. *Ecological Applications*, 28(7), 1715-1729.

Meddens, A.J., Vierling, L.A., **Eitel, J.U.H.**, Jennewein, J.S.\*, White, J.C., & Wulder, M. A. **2018**. Developing 5 m resolution canopy height and digital terrain models from WorldView and ArcticDEM data. *Remote Sensing of Environment*, 218, 174-188.

Ryer M. Becker, Robert F. Keefe, Nathaniel M. Anderson, **Eitel, J.U.H.** **2018**. Use of lidar-derived landscape parameters to characterize alternative harvest system options in the Inland Northwest, *International Journal of Forest Engineering*. <https://doi.org/10.1080/14942119.2018.1497255>

Magney, T.S., Logan, B.A., Reblin, J.S., Boelman, N.T., **Eitel, J.U.H.**, Greaves, H.E., Griffin, K.L., Prager, C.M., Vierling, L.A. **2017**. Xanthophyll cycle activity in two prominent arctic shrub species. *Arctic, Antarctic, and Alpine Research*, 49(2), 273-285

Silva, C., Hudak, A., Vierling, L., Klauberg, C., Garcia, M., Ferraz, A., Keller, M., **Eitel, J.U.H.**, Saatchi, S., **2017**. Impacts of Airborne Lidar Pulse Density on Estimating Biomass Stocks and Changes in a Selectively Logged Tropical Forest. *Remote Sens.* 9, 1068. doi:10.3390/rs9101068

Prager, C.M., Naeem, S., Boelman, N., **Eitel, J.U.H.**, Greaves, H., Heskell, M., Magney, T.S., Menge, D.N.L., Vierling, L.A., Griffin, K.L. **2017**. A gradient of nutrient enrichments reveals nonlinear impacts of fertilization of Arctic plant diversity and ecosystem function. *Ecology and Evolution*, 7(7), 2449-2460, DOI: 10.1002/ece3.2863

Corrao, M.V., Link, T.E., Heinse, R., **Eitel, J.U.H.** **2017**. Modeling of terracette-hillslope soil moisture as a function of aspect, slope and vegetation in a semi-arid environment. *Earth Surface Processes and Landforms*, DOI: 10.1002/esp.4114.

Ma, L.X., Zheng, G., **Eitel, J.U.H.**, Magney, T.S., Moskal, L.M. **2017**. Retrieving forest canopy extinction coefficient from terrestrial and airborne lidar. *Agricultural and Forest Meteorology*, 236, 1-21.

Greaves, H.E.\*, Vierling, L.A., **Eitel, J.U.H.**, Boelman, N., Magney, T.S., Prager, C.M.\*, Griffin, K.L. **2017**. Applying terrestrial lidar for evaluation and calibration of airborne lidar-derived shrub biomass estimates in Arctic tundra. *Remote Sensing Letters*, 8:2, 175-184, DOI: 10.1080/2150704X.2016.1246770.

Zheng, G., Ma, L.X., **Eitel, J.U.H.**, He, W., Magney, T.S., Moskal, L.M., Li, M.S. **2017**. Retrieving directional gap fraction, extinction coefficient, and effective leaf area index by incorporating scan angle information from discrete. *IEEE Transactions on Geoscience and Remote Sensing*, 55(1), 577-590.

Gersony, J.T., Prager, C.M., Boelman, N.T., **Eitel, J.U.H.**, Gough, L., Greaves, H.E., Griffin, K.L., Magney, T.S., Sweet, S.K., Vierling, L.A., Naeem, S. **2016**. Scaling thermal properties from the leaf to the canopy in the Alaskan arctic tundra. *Arctic, Antarctic, and Alpine Research*, 48(4), 739-754.

Cohn, T.S., Wyckoff, W., Rinella, M., **Eitel, J.U.H.** **2016**. Seems like I hardly see them around anymore: Historical geographies of Cottonwood decline along the Wind River. *Water History*, 8(4), 405-429, 10.1007/s12685-016-0187-5.

**Eitel, J.U.H.**, Höfle, B., Vierling, L.A., Abéllan, A., Asner, G., Deems, J.S., Blennie, C., Joerg, P.C., LeWinter, A., Magney, T.S.\*, Mandlbürger, G., Morton, D., Müller, J., Vierling, K. **2016**. Beyond 3-D: the new spectrum of lidar applications for Earth and Ecological sciences. *Remote Sensing of Environment*, 186, 372-392.

**Eitel, J.U.H.**, Magney, T.S., Vierling, L.A., Greaves, H.E.\*, Zheng, G. **2016**. An automated method to quantify crop height and calibrate satellite-derived biomass using hypertemporal lidar. *Remote Sensing of Environment*, 187, 414-422.

Magney, T.S.\*, **Eitel, J.U.H.**, Vierling, L.A. **2016**. Mapping wheat nitrogen uptake from RapidEye vegetation indices. *Precision Agriculture*, 17 (4).

Ma, L., Zheng, G., **Eitel, J.U.H.**, Magney, T.S.\*, Moskal, M. **2016**. Determining woody-to-total area ratio using terrestrial laser scanning (TLS). *Agricultural and Forest Meteorology*, doi:10.1016/j.agrformet.2016.06.021

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#### **Peer Reviewed/Evaluated:**

Veletsianos, G., Miller, B., Bradley Eitel, K., **Eitel, J.U.H.**, and Hougham, R.J. **2012**. Localizing Adventure Learning: Teachers and Students as Expedition Leaders and Members. In P. Resta (Ed.), *Proceedings of Society for Information Technology & Teacher Education. International Conference 2012* (pp. 2164-2169). Chesapeake, VA: AACE.

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#### **Popular Press Publications:**

Quarantined Scientists Are Turning the Internet Into Their Laboratory. 2020. In OneZero (<https://onezero.medium.com/quarantined-scientists-are-turning-the-internet-into-their-laboratory-59d1387fd728>). I was interviewed for this article and parts of the interview are referenced in the article.

Vierling, L.A. and **Eitel, J.U.H.** **2015**. The Buzz about Drones. *Society of American Foresters, Western Forester*.

Jensen, T. **2014**. Fine Tuning Remote Sensing Technologies for Nitrogen Application in Semi-Arid Cereal Crops, *Better Crops with Plant Food*, 98(3): 7-8. Article is based on my dissertation work published in Eitel et al. (2008, 2009; see details for publications under refereed publications above)

**Other:** (reports, proceedings, papers, citations and references, performances)

Lecigne, B., **Eitel, J.U.H.** **2018**. viewshed3d: Compute Viewshed in 3D Terrestrial Laser Scanner Scenes of Ecosystems. R package version 1.0.0. <https://CRAN.R-project.org/package=viewshed3d>

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Keefe, R., **Eitel, J.U.H.** **2013**. Application of carriage-mounted agricultural cameras to improve safety in cable logging operations, 2013 Council on Forest Engineering, Missoula, MT.

Magney, T.S., Vierling, L.A., **Eitel, J.U.H.** **2012**. The Hills Have Eyes ... and Lasers, LEDs, Photodiodes, Time-Lapse Cameras, and Satellites. The OutREACCH, A quarterly report by Regional Approaches to Climate Change, Pacific Northwest Agriculture, August, 2012, Vol. I, Issue 2. [https://www.reacchpna.org/files/9813/4763/7375/August\\_2012\\_Vol\\_1\\_Issue\\_2.pdf](https://www.reacchpna.org/files/9813/4763/7375/August_2012_Vol_1_Issue_2.pdf)

**Eitel, J.U.H.**, Hollenhorst, S., Eitel, K.C.B et al. **2012**. A Strategic Plan for the Development of a Field Research Station at the University of Idaho's McCall Field Campus.

#### **Refereed/Adjudicated (currently scheduled or submitted):**

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#### **Data products**

Schmiege, S.C., K. Griffin, N. Boleman, L. Vierling, S.G. Bruner, E. Min, A.J. Maguire, J. Jensen, and **J.U.H. Eitel.** **2023**. White Spruce Photosynthetic, Leaf, Pigment and Spectral Traits, AK and NY, US, 2017. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAC/2124>

Jensen, J., Boelman, N., **Eitel, J.U.H.**, Vierling, L., Maguire, A.J. and Griffin, K., **2023**. Dendrometer, Soil, and Weather Observations, Arctic Tree Line, AK and NWT, 2016-2019. ORNL DAAC, Oak Ridge, Tennessee, USA.

Weygint, William; **Eitel, J.U.H.**; Maguire, Andrew J.; Vierling, Lee A.; Johnson, Daniel M.; Campbell, Colin S.; et al. **2022**: Nokes Experimental Forest: Leaf Temperature, Stem Radius, and Environmental Condition Data. figshare. Dataset. <https://doi.org/10.6084/m9.figshare.19725118.v1>

Russell, M.; **Eitel, J.U.H.**, Link, T.E., Silva, C.A. **2021**. Data from: Important airborne lidar metrics of canopy structure for estimating snow interception [Data set]. University of Idaho, 2021. <https://doi.org/10.7923/3YXS-QK65>

Griffin, K., Schmiege, S.C., Bruner, S.G., Boelman, N., Vierling, L.A., **Eitel, J.U.H.** **2021**. Spruce Leaf and Tree Traits, Water Vapor and CO2 Exchange, Arctic Treeline, AK, 2018. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAC/1948>

**Eitel, J.U.H.**, K.L. Griffin, N.T. Boelman, L.A. Vierling, J. Jensen, A.J. Maguire, and S.C. Schmiege. **2020**. In-situ Photochemical Reflectance Index and Tree Growth in Northern Alaska, 2018-2019. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAC/1781>

Maguire, A.J., **Eitel, J.U.H.**, Vierling, L.A., Boelman, N.T., Griffin, K.L., Jennewein, J.S., Jensen, J.E. **2020**. Terrestrial lidar scanning of forest-tundra ecotone canopy and terrain structure. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAC/1782>

Maguire, A.J., **J.U.H. Eitel**, K.L. Griffin, S.C. Schmiege, S.G. Bruner, N.T. Boelman, W.A. Weygint. **2020**. Needle-level chlorophyll fluorescence and irradiance, AK and ID, 2017-2019. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAC/1785>

Greaves, H.E., **Eitel, J.U.H.**, L. Vierling, N. Boelman, K. Griffin, T. Magney, and C. Prager. **2019**. High-Resolution Vegetation Community Maps, Toolik Lake Area, Alaska, 2013-2015. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAC/1690>

Greaves, H.E., L. Vierling, **J.U.H. Eitel**, N. Boelman, T. Magney, C. Prager, and K. Griffin. **2018**. High-Resolution Shrub Biomass and Uncertainty Maps, Toolik Lake Area, Alaska, 2013. ORNL DAAC, Oak Ridge, Tennessee, USA. <https://doi.org/10.3334/ORNLDAAC/1573>

#### **Presentations and Other Creative Activities:**

2012 – 2013. Assisted development of MOSS Adventure Learning website used as an outreach tool for parents, teachers and students in MOSS residential programs; funded by NSF CI:TEAM project titled “Adventure Learning through water and MOSS”, Award #1135577

#### **Professional Meeting Papers, Workshops, Showings, Recitals:**

**Eitel, J.U.H.**, **2023**, Invited, Monitoring intra-annual tree growth dynamics using remote sensing, December 14, Norwegian University of Life Sciences, Oslo, Norway

**Eitel, J.U.H.**, **2023**, Invited, Towards monitoring tree intra-annual tree growth from space, September 8, Idaho State University, Pocatello, ID

Peven G, **Eitel, J.U.H.**, Andrus, R.A., Engels, M. **2023**. Increased conifer tree regeneration occurs at spring ecosystems following high severity wildfire in dry mixed conifer forests, Abstract (B51D-1797) presented at AGU 23, 11-15 Dec.

Rao, M.O, ... **Eitel, J.U.H.** et al. **2023**. Summer aridity decouples growth from carbon assimilation in temperate oaks. AGU Fall Meeting 2023. Poster Presentation.

Griffin, K.L. ... **Eitel, J.U.H. et al.** **2023**. Spruce trees respire less CO<sub>2</sub>, consume less O<sub>2</sub> and have lower respiration quotient than seedlings of saplings at the Forest Tundra Ecotone. AGU Fall Meeting. Poster Presentation.

**Eitel, J.U.H.** Reading between the lines – monitoring intra annual stem growth using remote sensing. **2022**. *Invited keynote* at the TreeNet anniversary conference, June 27-28, Basel, Switzerland

Weygint, W. A., **Eitel, J. U. H.**, Maguire, A. J., Vierling, L. A., Johnson, D. M., Campbell, C. S., & Griffin, K. L. **2022**. Towards Predicting Diurnal Stem Radial Variations Across Ecosystems: What Role can Thermal Remote Sensing Play? AGU Fall Meeting. Poster Presentation.

Bruner, S. G., S. Naeem, **Eitel, J.U.H.**, K. L. Griffin, D. N. L. Menge, M. P. Rao, K. Terlizzi, W. S. F. Schuster. **2022**. Long-term impacts of foundation species loss are not influenced by compensatory

dynamics: results from an experimental manipulation of foundation species in a temperate northeastern deciduous forest. Ecological Society of America - Canadian Society for Ecology & Evolution Annual Meeting, 15 Aug. 2022, Montréal, Québec, Canada, Contributed Talk

Rachel M. Stein, Bastien Lecigne, J.U.H. Eitel, Janet L. Rachlow. Security at multiple scales: concealment and visibility both influence selection of habitat by a leporid. **2022**. American Society of Mammalogists, June 17-21, Tuscon, AZ.

Lewis, S., Robichaud, P.R., Hudak, A., **Eitel, J.U.H.**, Strand, E.K., Brown, R.E. **2021**. A Spatial-Spectral-Temporal Evaluation of Ash Cover After Wildfire. Poster presentation at the AGU Fall Meeting, December 13-17, New Orleans, LA

Erickson, A., Kumar, S.V., Hudson, D.I., Stamnes, S., Puttonen, E., ... **Eitel, J.U.H.** et al. **2021**. Hypersurface Observation Network (Hyperon) – What it is and why we need it. Poster presentation at the AGU Fall Meeting, December 13-17, New Orleans, LA

Griffin, K.L., Schmiege, S.C., Bruner, S., Boelman, N., Vierling, L.A., **Eitel, J.U.H.** **2021**. High leaf respiration rates may limit the success of white spruce saplings growing in the Kampfzone at the Arctic treeline. Poster presentation at the AGU Fall Meeting, December 13-17, New Orleans, LA

Weygint, W., **Eitel, J.U.H.**, Maguire, A., et al. **2021**. Physiological Linkages between Conifer Leaf Temperatures and Daily Tree Wood Growth: Implications for Thermal Remote Sensing Products. Poster presentation at the AGU Fall Meeting, December 13-17, New Orleans, LA

Stein, R.M., Rachlow, J.L., Lecigne, B., **Eitel, J.U.H.**, Johnson, T., McGowan, C. **2021**. Structure and perspective: how viewsheds are affected by individual position in diverse habitats. *Annual meeting of the Idaho Chapter of the Wildlife Society*.

Allred, C., Stein, R.M., Lecigne, B., **Eitel, J.U.H.**, Rachlow, J.L. **2021**. Going from 2- to 3-dimensional data for estimating visibility: exploring viewsheds as a property of wildlife habitat. *Annual meeting of the Idaho Chapter of the Wildlife Society*.

Weygint, W. A., **Eitel, J. U. H.**, Boelman, N., Jensen, J. E., Griffin, K.L., Maguire, A., and L. A. Vierling. **2020**. Determining the Suitability of Remotely Sensed Snow Disappearance Date as a Proxy for the Onset of Tree Wood Growth in Conifers at the Forest-Tundra Ecotone. American Geophysical Union Fall Meeting, December 2020.

Crawford, H.L., **Eitel, J.U.H.**, Cousin, B. and Wilhelm, F. M. **2020**. Use of ground-based LiDAR 3D scanning to measure shoreline erosion in response to waves and wakes. 40th Annual International Symposium of the North American Lake Management Society, online. Nov 16-20.

Crawford, H. L., **Eitel, J.U.H.**, Cousin, B. and Wilhelm, F. M. **2020**. Using Ground-Based Lidar 3D Scanning to Measure Shoreline Accretion and Erosion in Response to Waves and Wakes. 33rd Annual conference of the Washington State Lake Protection Association, Virtual, Oct. 14-15.

Jensen, J.E., Griffin, K.L., **Eitel, J.U.H.**, Boelman, N., Vierling, L.A., Maguire, A. **2020**. The influence of environmental variables on intra-seasonal radial stem growth dynamics at the Arctic forest-tundra ecotone using point dendrometers. Presentation at 2020 Fall meeting of the American Geophysical Union. Virtual Meeting.

Rachlow, J. L., R. M. Stein, **J. U. H. Eitel**, and B. Lecigne. **2020**. Viewshed analyses: including visibility as a property of wildlife habitat. Idaho Chapter of The Wildlife Society. Moscow, ID. (March 2020)

Maguire, A.J., **J.U.H. Eitel**, T.S. Magney, C. Frankenberg, E.L. Orcutt, N.C. Parazoo, R. Pavlick, Z.A. Pierrat, and P.A. Townsend. Mechanistic drivers of canopy-scale spatial patterns in solar induced fluorescence from boreal forests. Oral presentation at American Geophysical Union Fall Meeting (virtual), December 2020

**Eitel, J.U.H.**, Griffin, K.L., Boelman, N., Meddens, A.J., Jensen, J., Vierling, L.A., Maguire, A., Schmiede, S.C. and Jennewein, J.S. **2019**. Remote sensing of intra-annual tree growth dynamics in a boreal forest. Oral presentation at the AGU Fall Meeting, December 9, San Francisco.

Maguire, A., **Eitel, J.U.H.**, Griffin, K.L., Magney, T.S., Long, R., Boelman, N., Bruner, S., Jennewein, J.S., Jensen, J., Schmiede, S.C. and Vierling, L.A. **2019**. Assessing the sensitivity of shoot-level chlorophyll fluorescence to scalable proxies of absorbed radiation in an evergreen needleleaf forest. Poster presentation at the AGU Fall Meeting, December 9, San Francisco

Eitel, K., Cohn, T., Seven, K., **Eitel, J.U.H.**, Vierling, L., Uh, C., White Temple, E., Davis, M., Dixon, R., Carter, M. **2018**. Integrating Cultural and Scientific Identities at DRONE Camp: an Indigenous Environmental Science Course for High School Students.

Jennewein, J.S., Mahoney, P., Meddens, A.J.H., Hebblewhite, M., Gilbert, S., Boelman, N., Frye, G., Joly, K., King-Jones, K., Julianus, E., Paragi, T., Seaton, K., Vierling, L.A., **Eitel, J.U.H.** **2018**. Using Remotely Sensed Features of Habitat Structure to Assess Behavioral Thermoregulation of Alaskan Moose in Response to Increasing Temperatures. AGU Fall Meeting, December 10 – 14, Washington, D.C.

Jensen, J.E., A. Maguire, R. Oelkers, L. Andreu, N. Boelman, R. D'Arrigo, K. Griffin, C. Silva, J. Jennewein, A.J.H. Meddens, M. Russell, L. A. Vierling, and **J.U.H. Eitel**. **2018**. Using aerial lidar to understand the role of climate and herbivory in shaping forest demographics at the Arctic forest-tundra ecotone. AGU Fall Meeting, December 10 – 14, Washington, D.C.

Maguire, A.J., **Eitel, J.U.H.**, Griffin, K.L., Magney, T.S., Boelman, N.T., Vierling, L.A., Schmiede, S.C., Bruner, S.G., Jensen, J.E., Hiers, E. **2018**. Assessing the sensitivity of ChlF to canopy structure at the forest-tundra ecotone: toward remotely sensing light use efficiency dynamics. AGU Fall Meeting, December 10-14, Washington, D.C.

Schmiede, S.C., Griffin, K.L. Boelman, N., Bruner, S., **Eitel, J.U.H.** **2018**. Vertical gradients in physiological function and pigment allocation at the Forest Tundra Ecotone: Implications for scaling up leaf level carbon fluxes in white spruce stands. AGU Fall Meeting, 10-14 December, Washington D.C.

**Eitel, J.U.H.**, Maguire, A.J., Boelman, N., Vierling, L.A., Griffin, K.L., Jensen, J., Magney, T.S., Mahoney, P.J., Meddens, A.J.H., Silva, C., Sonnentag, O. **2018** Evaluating the potential of fall trends in photochemical reflectance index (PRI) time-series to improve understanding of climate change effects at northern treeline. AGU Fall Meeting, 10-14 December, Washington D.C.

Jensen, J. E., A. Maguire, R. Oelkers, L. Andreu, N. Boelman, R. D'Arrigo, K. Griffin, C. Silva, J. Jennewein, A.J.H. Meddens, M. Russell, L. A. Vierling, and **J.U.H. Eitel**. **2018**. Towards lidar-based mapping of tree-age at the Forest Tundra Ecotone. Fourth ABoVE Science Team Meeting, January 23-26, Seattle WA.

**Eitel, J.U.H.**, Boelman, N.T., Griffin, K.L., Vierling, L.A., Jensen, J.J., Maguire, A.J., Meddens, A., Russell, M. **2017**. Lidar, passive spectral, and ecophysiological approaches to link Forest Tundra Ecotone structure and function. Poster presented at the Arctic-Boreal Vulnerability Experiment Conference in Boulder, CO, USA, January 2017.

Meddens, A.J.H., Vierling, L.A., **Eitel, J.U.H.**, Jennewein, J.S., Silva, C.A., White, J.C., and Wulder, M.A. **2017**. Estimating vegetation height from WorldView-02 and ArcticDEM data for broad ecological applications. AGU Fall Meeting, 11-15 December, New Orleans, LA.

Maguire A.J., **Eitel, J.U.H.**, Vierling, L.A., Johnson, D.M., Griffin, K.L., Boelman, N.T., E. Jensen, J.J., and Hiers, E. **2017**. Using terrestrial lidar to Elucidate Structure-to-Function Relationships of Spruce Saplings at the Forest-Tundra Ecotone. AGU Fall Meeting, New Orleans, LA, December 2017.

Jensen, J. E., Maguire, A.J., Oelkers, R., Andreu, L., Boelman, N., D'Arrigo, R., Griffin, K., Jennewein, J., Meddens, A.J.H., Russell, M., Vierling, L.A., **Eitel, J.U.H.** 2017. Towards lidar-based mapping of tree age at the Forest Tundra Ecotone. AGU Fall Meeting, 11-15 December, New Orleans, LA.

Jennewein, J.S., Hebblewhite, M., Meddens, A.J.H., Gilbert, S., Vierling, L.A., Boelman, N.T., **Eitel, J.U.H.** 2017. Assessing the Utility of Temporally Dynamic Terrain Indices in Alaskan Moose Resource Selection. AGU Fall Meeting, 11-15 December, New Orleans, LA.

Jensen, J. E., A. Maguire, R. Oelkers, L. Andreu, N., Boelman, R. D'Arrigo, K. Griffin, J. Jennewein, A.J.H. Meddens, M. Russell, L. Vierling, **J.U.H. Eitel.** 2017. *Chasing Treeline: Reconstructing the history of the Forest-Tundra Ecotone using lidar-derived tree height.* Poster presented at the Arctic-Boreal Vulnerability Experiment Conference in Boulder, CO, USA, January 2017.

Maguire A.J., **Eitel, J.U.H.**, Vierling, L.A., Johnson, D.M., Griffin, K.L., Boelman, N.T., E. Jensen, J.J., and Hiers, E. 2017. Evaluating relationships between seedling establishment and microtopography at the Forest-Tundra Ecotone using terrestrial lidar. Poster presented at the Arctic-Boreal Vulnerability Experiment Conference in Boulder, CO, USA, January 2017.

**Eitel, J.U.H.** 2016. Precision agriculture through the eyes of a laser. Armidale, Australia, December 5, 2016 (*invited*).

**Eitel, J.U.H.** 2016. Ecology through the eyes of a laser. Brisbane, Australia, December 8, 2016 (*invited*).

Greaves, H., Vierling, L.A., **Eitel, J.U.H.**, Boelman, N., Magney, T.S., Prager, C.M., Griffin, K.L. 2016. High-resolution maps of shrub biomass and canopy volume near Toolik Field Station. Arctic LTER annual meeting, Woods Hole, MA, April 2016.

**Eitel, J.U.H.**, Boelman, N., Griffin, K., Vierling, L.A. 2015. LiDAR, passive spectral, and ecophysiological approaches to link Forest Tundra Ecotone structure and function. NASA ABoVE Science Team Meeting, September 29, 2015, Minneapolis, MN (*invited*).

Magney, T.S., **Eitel, J.U.H.**, Vierling, L.A., Greaves, H.E. 2015. Hyper-temporal lidar for tracking fine-scale changes in vegetation structure, phenology, and physiology. AGU Fall Meeting, San Francisco, CA, December 2015.

Sanow, J., **Eitel, J.U.H.**, Vierling, L.A., Fremier, A. 2015. Testing the suitability of an autonomously operating terrestrial laser scanner (ATLS) to provide accurate snow depth measurements. AGU Fall Meeting, San Francisco, CA, December 2015.

**Eitel, J.U.H.**, Magney, T.S., Vierling, L.A., Greaves, H.E. 2015. 5D LiDAR and its potential to advance phenomics. Advanced in field-based high-throughput phenotyping and data management: grains and specialty crops, November 9-10, 2015, Spokane, WA (*invited*)

Corrao, M.V., T.E. Link, **J.U.H. Eitel**, and R. Heinse. 2015. Terracette Influences on Spatial Patterns of Soil Moisture in a Semiarid Rangeland Environment. Presentation: Hydrophiles Water Research Symposium - Oregon State University. Corvallis, OR. April 26 – 28, 2015.

**Eitel, J.U.H.** 2015. Promoting Remote Sensing Research and Education in Idaho. Poster session presented at: USGS Headquarters, Reston, VA, 23 February 2015.

Schönert, M., Zillmann, E., Weichelt, H., **Eitel, J.U.H.**, Magney, T.S. 2015. Agricultural biophysical parameters and the Tasseled Cap Transformation for RapidEye data. IGFT 2015 – ASPRS Annual Conference, May 4-8, 2015, Tampa, Florida.

Greaves, H., Vierling, L.A., **Eitel, J.U.H.**, Boelman, N., Magney, T.S., Boelman, N., Griffin, K.L. 2015.



Using Airborne and Terrestrial Lidar to Estimate Biomass of Low-Stature Arctic Tundra Shrubs. Canadian Remote Sensing Society Meeting, June 8-11 2015, St. John's Newfoundland.

Höfle, B, Koenig, K., Griesbuam, L., Kiefer, A., Hämmerle, M., **Eitel, J.U.H.**, Koma, Z. LiDAR Vegetation Investigation and Signature Analysis System (LVISA). Geophysical Research Abstracts, Vol. 17, EGU 2015-1537, EGU General Assembly 2015.

Magney, T.S., **Eitel, J.U.H.**, Griffin, K., Zheng, G., Boelman, N., Logan, B., Greaves, H., Prager, C., Fortin, L., Oliver, R., Ma, L., Vierling, L. Ground based remote sensing and physiological measurements provide insights into canopy optimization in arctic shrubs. AGU Fall Meeting, San Francisco, CA, December 2014.

Greaves, H., Vierling, L.A., **Eitel, J.U.H.**, Boelman, N., Magney, T.S., Prager, C., Griffin, K.L. Estimating aboveground biomass of low-stature Arctic shrubs with terrestrial LiDAR. AGU Fall Meeting, San Francisco, CA, December 2014.

Vierling, L.A., Magney, T.S., **Eitel, J.U.H.** Remote detection of water stress conditions via a diurnal photochemical reflectance index (PRI) improves yield prediction in rainfed wheat. AGU Fall Meeting, San Francisco, CA, December 2014.

Brown, D.J., D.R. Huggins, C.O. Stockle, E. Brooks, **J.U.H. Eitel**, K.M.Painter, L.A.Vierling and C.Reardon. Site-Specific Climate-Friendly Farming: Benefits and Challenges of Transdisciplinary Research. ASA-SSSA-CSSA Annual Meeting. Long Beach, CA. Nov. 2 (2014)

Magney, T., N.K. Ward, E. Brooks, D.R. Huggins, S. Finch, **J.U.H. Eitel**, L.A. Vierling, M. Yourek, T.R. Anderson, C.O. Stockle and D. Brown. Assessing the controls on spatio-temporal nitrogen uptake patterns using a biophysical process model and high resolution satellite imagery. ASA-SSSA-CSSA Annual Meeting. Long Beach, CA. Nov. 2 (2014)

**Eitel, J.U.H.**, Vierling, L.A., Magney, T.S., Greaves, H.E., Vierling, K.T., Hudak, A.T., Boelman, N.T., Griffin, K.L., Dittmar, G. 2014. Beyond 3-D. International Workshop 3D Vegetation Mapping using Advanced Remote Sensing - Implications for Seamless Modeling of Terrestrial Ecosystems, September 24th-26th, St.Oswald, Germany (*invited*)

**Eitel, J.U.H.** Beyond 3-D. Boise State University, June 11<sup>th</sup>. 2014

Vierling, L.A., Finch, S., Vogeler, J., Silva, C., Vierling, K.T., Hudak, A.T., and **Eitel, J.U.H.** 2014. Using LiDAR to quantify multiple ecosystem attributes at the individual landowner scale. Quantification of Ecosystem Services: Concepts and Measurement Workshop. CATIE/CGIAR, Turrialba, Costa Rica, 12 March 2014 (*invited*).

Charbonnier, F., le Maire, G., Dreyer, E., Casanoves, F., Christina, M., Dauzat, J., **Eitel, J.U.H.**, Vaast, P., Vierling, L.A., Vand den Meersche, K., Harmand, J-M., Roupsard, O. The End of The Sun/Shade dichotomy in AFS: mapping of plant light budgets in multistrata heterogeneous plots. Presented at: World Congress on Agroforestry, 10-14 February 2014, Delhi, India.

Corrao, M.V., **J.U.H. Eitel**, T.E. Link, and R. Heinse. 2014. Hillslope terracettes and vadose zone hydrology: implications for natural resource management. Presentation: American Water Resource Association – Integrated Water Resource Management Conference, Reno, NV. June 30 – July 2, 2014.

**Eitel, J.U.H.** 2014. Promoting Remote Sensing Education in Idaho. Poster session presented at: USGS Headquarters, Reston, VA, 24 February 2014.

Corrao, M.V., **Eitel, J.U.H.**, Link, T.E., Heinse, R. 2013. Hillslope terracettes and vadose zone hydrology: implications for natural resource management. Poster session presented at: Idaho NSF EPSCoR annual meeting, Oct 7-9, McCall, ID.

Magney, T.S., Greaves, H.E., Vierling, L.A., Eitel, J.U.H., Boelman, N.T., Griffin, K.L., Prager, C.,

Ayaji, M., and Gibson, R. 2013. Quantifying shrub encroachment in Northern Alaska using LiDAR. AGU Fall Meeting, San Francisco, CA, December 2013.

Magney, T.S., Vierling, L.A., **Eitel, J.U.H.**, Finch, S., Huggins, D., Brooks, E., and Yourek, M. **2013**. The use of different satellite sensors in assessing crop performance. Far West Agribusiness Conference, Pasco, WA, December 2013. (*invited*)

Vierling, L.A., **Eitel, J.U.H.**, Garrity, S.R., Greaves, H.E., and Magney, T.S. **2013**. Linking ecosystem structure and function from the leaf to the canopy using low altitude remote sensing: a humble overview. AGU Fall Meeting, San Francisco, CA, December 2013. (*invited*)

Vierling, L.A., Martinuzzi, S., Hudak, A.T., **Eitel, J.U.H.**, Vogeler, J., Magney, T., and Vierling, K.T. **2013**. Earth in 3-D: shedding new light on environmental studies using lasers. Whitman College, Walla Walla, WA, 17 October 2013 (*invited*)

Vierling, L.A., Martinuzzi, S., Hudak, A.T., **Eitel, J.U.H.**, Vogeler, J., Greaves, H., Magney, T., Boelman, N., Griffin, K., and Vierling, K.T. **2013**. Lasers, Ecology, and YOU. University of Alaska Fairbanks/Toolik Field Station LTER, North Slope, AK, 16 July 2013 (*invited*)

Vierling, L.A., Boelman, N.T., **Eitel, J.U.H.**, Griffin, K.L., Greaves, H.E., Magney, T.S., and Prager, C. **2013**. Quantifying thresholds in arctic tundra vegetation structure and ecosystem function using LiDAR and multispectral remote sensing. NASA Terrestrial Ecology Science Team Meeting, La Jolla, CA, April 30-May 2, 2013. (*invited*)

Vierling, L.A., Magney, T.S., Greaves, H.E., and **Eitel, J.U.H.** **2013**. Reflecting on Alaska: Advanced remote sensing approaches to understand tundra vegetation change. Columbia University, New York, NY, 4 March 2013. (*invited*)

Greaves, H.E., Magney, T.S., Vierling, L.A., **Eitel, J.U.H.**, Boelman, N.T., Griffin, K.L., and Prager, C.\* **2013**. Quantifying thresholds in arctic tundra vegetation structure and ecosystem function using LiDAR and multispectral remote sensing. Arctic LTER annual meeting, Woods Hole, MA, 5 March 2013. (*invited*)

**Magney, T.S.**, Vierling, L.A., **Eitel, J.U.H.** 2013. Determining Crop Structure and Function Using LiDAR and Narrowband Radiometers. Regional Approaches to Climate Change Integration Meeting. Moscow, ID, 11 January 2013. (*invited*)

**Eitel, J.U.H.**, Magney, T.S., Vierling, L.A., Brown, T., Huggins, D.R. **2012**. A novel mobile dual-wavelength laser system for improved site-specific nitrogen fertilizer applications. AGU Fall Meeting, San Francisco, 3 - 6 December, 2012.

Magney, T.S., Vierling, L.A., **Eitel, J.U.H.**, Campbell, G., Cobos, D.R., Campbell, C. **2012**. Design and Testing of a Narrowband Spectral Radiometer for Quantifying Plant Biophysical Properties. AGU Fall Meeting, San Francisco, 3 - 6 December, 2012.

Vierling, L.A., Finch, S., Vierling, K.T., Strand, E.K., Hudak, A.T., Vogeler, J., Martinuzzi, S., **Eitel, J.U.H.**, and Falkowski, M.J. **2012**. Lasers on the Landscape: Quantifying 3-D ecosystem structure to map continuous surfaces of aboveground carbon, avian species richness, and tree species distributions. AGU Fall Meeting, San Francisco, 3 - 6 December, 2012 (*invited*)

Eitel, K.C.B., Miller, B.G., Veletsianos, G., **Eitel, J.U.H.**, O'Hair, M., Schon, J. and Hougham, R.J. **2012**. Adventure Learning Through Water and MOSS – a novel approach to engaging K-12 students in climate change issues. AGU Fall Meeting, San Francisco, 3 - 6 December, 2012.

Corrao, M.V., **Eitel, J.U.H.**, Wessel, M., Link, T., Heinse, R. **2012**. Assessment of Hillslope Terracing Effects on Vadose Zone Hydrology Using Terrestrial LiDAR and Electromagnetic Induction. ASA, CSSA,

and SSSA International Annual Meetings, Cincinnati, Ohio, 21-24 October 2012.

Krofcheck, D.J., **Eitel, J.U.H.**, Vierling, L.A., Schulthess, U., Robinson, E., Litvak, M.E. **2012**. Linking structural with functional changes in a piñon-juniper woodland using a time series of satellite data and eddy covariance. ForestSAT 2012, Corvallis, Oregon, 11-14 September 2012.

**Eitel, J.U.H.**, Vierling, L.A., Magney, T.S. **2012**. Suitability of a green scanning terrestrial laser scanner for mapping foliar biochemistry (*oral presentation*). Idaho NASA EPSCoR Annual Meeting, 2-3 October 2012.

**Eitel, J.U.H.**, Vierling, L.A., Magney, T.S. **2012**. Autonomously operating terrestrial laser scanner for monitoring forest ecosystems at a very high temporal resolution (*oral presentation*). SilviLaser 2012, Vancouver/Canada, 16-19 September 2012.

Magney, T.S., Eusden, S.A., **Eitel, J.U.H.**, Vierling, L.A., Logan, B.A. **2012**. Remote Estimation of Photosynthetic Efficiency Using a Green Terrestrial Laser Scanner. SilviLaser 2012, Vancouver/Canada, 16-19 September 2012.

Hudak, A.T., Strand, E.K., Vierling, L.V., Byrne, J., **Eitel, J.U.H.**, Martinuzzi, S., Falkowski, M.J. **2012**. Estimating aboveground forest carbon pools and fluxes from repeat field and LiDAR surveys. Canadian Forest Service Northern Forestry Centre, Edmonton, Alberta, Canada, 29 Feb 2012. (*oral presentation*).

Vierling, L.A., Martinuzzi, S., Adam, P., Finch, S., Hudak, A.T., **Eitel, J.U.H.**, Strand, E.K., Falkowski, M.J., Vogeler, J., and Vierling, K.T. **2012**. Lasers on the landscape: Quantifying 3-D ecosystem structure to map continuous surfaces of carbon and species distributions. University of Wisconsin Department Forest and Wildlife Ecology Visiting Seminar, Madison, WI, 17 February 2012 (*invited*).

**Eitel, J.U.H.**, Lee A. Vierling, Dan S. Long. **2011**. Remote sensing of foliar biochemistry with a green scanning terrestrial laser scanner. AGU Fall Meeting, San Francisco, 5-9 December 2011.

Vierling, L.A., Garrity, S.R., Campbell, G., Coops, N.C., **Eitel, J.U.H.**, Gamon, J.A., Hilker, T. et al. **2011**. Quantifying seasonal dynamics of canopy structure and function using inexpensive narrowband spectral radiometers (*invited*). AGU Fall Meeting, San Francisco, 5-9 December 2011.

Brown, D.J., Brooks, E.S., **Eitel, J.U.H.**, Huggins, D.R., Painter, K., Rupp, R., Smith, J.L., Stockle, C., Vierling, L.A. **2011**. Site-Specific, Climate-Friendly Farming. Presented at the American Geophysical Union Fall Meeting, San Francisco, CA, December, 2011.

**Eitel, J.U.H.**, Hollenhorst, S.J., Eitel, K.C.B. et al. **2011**. Idaho Mountain Research Station. Annual Meeting of the Organization of Biological Field Stations, UC Davis Bodega Bay Marine Laboratory, 22-25 September 2011.

**Eitel, J.U.H.**, Williams, C.J., Vierling, L.A., Al-Hamdan, O.Z., Pierson, F.B. **2011**. Surface roughness effects on concentrated flow erosion processes in rangelands pre- and post-fire. Interior West Fire Ecology Conference, Snowbird, UT, 14-17 November 2011.

**Eitel, J.U.H.**, and Vierling, L.A. **2011**. Beyond 3D. CATIE/PCP/UI Conference: From the Leaf to the Landscape: Field and Remote Sensing Approaches for Understanding Vegetation Structure and Dynamics. CATIE, Turrialba, Costa Rica, 12-13 May 2011.

Vierling, L.A., Martinuzzi, S., Hudak, A.T., Garrity, S.R., **Eitel, J.U.H.**, Strand, E.K., Falkowski, M.J., Vogeler, J., and Vierling, K.T. **2011**. The role of remote sensing data in understanding agro-ecological legacies. CATIE/PCP/UI Conference: From the Leaf to the Landscape: Field and Remote Sensing Approaches for Understanding Vegetation Structure and Dynamics. CATIE, Turrialba, Costa Rica, 12-13 May 2011.

**Eitel, J.U.H.**, Vierling, L.A., Litvak, M., Krofcheck, D., Stoscheck, L. **2011**. Red-edge satellite information improves early stress detection in forests. 3rd Annual EPSCoR Tri-State Western Consortium Meeting, Santa Ana Pueblo, NM, 7 April 2011.

Long, D.S., **Eitel, J.U.H.** **2011**. Combined spectral indices for remote sensing of leaf chlorophyll content of dryland wheat and direct sensing in agriculture. International Symposium on Sensing in Agriculture. February 21-24, 2011, Haifa, Israel.

**Eitel, J.U.H.** **2011**. Predicting Rill Erosion in Rangelands using Fine-scale Surface Roughness Derived from Terrestrial Laser Scanner Data. Soil Seminar Series, Spring 2011, Washington State University, March 7th, 2011, Pullman, WA.

**Eitel, J.U.H.**, Williams, C.J., Vierling, L.A., Al-Hamdan, O.Z., Pierson, F.B. **2010**. Suitability of terrestrial laser scanner derived surface roughness for predicting rill erosion in rangeland ecosystems. Presented at the American Geophysical Union Annual Fall Meeting in San Francisco.

Sankey, J.B., Germino, M.J., Glenn, N.F., **Eitel, J.U.H.**, Vierling, L.A. **2010**. Post-fire soil stability and relation to vegetation at landscape to microsite scales. Alternative Management Strategies in Big Sagebrush Steppe: Perspectives, Opportunities and Supporting Evidence - 2010 Idaho Section Annual Symposium and Winter Meeting November 10-12, 2010, Idaho Falls, ID.

**Eitel, J.U.H.** **2010**. Use of Remote Sensing for Improved Protein Management. Invited speaker, University of Würzburg, Germany.

Vierling, L.A., Martinuzzi, S., Hudak, A.T., Garrity, S.R., **Eitel, J.U.H.**, Strand, E.K., Falkowski, M.J., Vierling, K.T. **2010**. Landsat Time Series-based Vegetation Change: Context for Understanding Ecological Legacies. Landsat Science Team Semi-Annual Meeting, Boise, ID, 16 June 2010.

Hunt, E.R., Jr., Daughtry, C.S.T., **Eitel, J.U.H.**, Long, D.S. **2009**. Remote sensing chlorophyll content of leaves and canopies using red, green and blue wavebands. ASA-CSSA-SSSA International Annual Meetings, Pittsburg, PA, 1 November 2009.

**Eitel, J.U.H.**, Long, D.S., Gessler, P.E., Hunt, E.R., Jr., and Brown, D.J. **2008**. Sensitivity of Remote Sensing Estimates of Wheat Chlorophyll Content to Varying Soil Reflectance. ASA-CSSA-SSSA International Annual Meetings, Houston, TX, 8 October 2008.

**Eitel, J.U.H.**, Keefe, R.F., Long, D.S., Davis, A.S. and Gessler, P.E. **2008**. Suitability of optical ground sensors to monitor seedling quality. 29<sup>th</sup> Annual Intermountain Container Seedling Growers' Association Meeting, Coeur d'Alene, ID, 9 October 2008.

**Eitel, J.U.H.**, Long, D.S., and Gessler, P.E. **2007**. Evaluation of Multispectral Based Radiative Transfer Model Inversion to Estimate Leaf Area Index in Wheat. ASA-CSSA-SSSA International Annual Meetings, New Orleans, LA, 8 November 2007.

**Eitel, J.U.H.** **2007**. Suitability of space-borne imaging systems to predict wheat nitrogen status. Invited speaker, RapidEye AG, Brandenburg an der Havel, Germany.

**Eitel, J.U.H.** and Gessler, P. E. **2006**. Suitability of air- and spaceborne imaging systems to detect low and moderate levels of water stress in field grown populus spp. NASA ISGC Research Symposium, Moscow, ID, 18 October 2006.

**Eitel, J.U.H.** **2006**. Evaluation of spectral indices to remotely detect water stress in populus spp. Invited speaker, USDA Agricultural Research Service Hydrology and Remote Sensing Laboratory, Beltsville, Maryland.

**Eitel, J.U.H.**, Gessler, P.E., Smith, A.M.S., Robberecht, R. **2005**. Suitability of Existing NIR and Novel SWIR Spectral Indices to Remotely Detect Water Stress in Populus spp. American Geophysical Union Annual Fall Meeting, San Francisco, CA, 9 December 2005.

**Patents:**

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**Grants and Contracts Awarded:**

- 2023 - current PI: Jason Karl, Co-PI: Jan Eitel: Acquisition of a UAS-mounted aerial Lidar system to support agricultural and natural-resources research. USDA-NIFA, **\$150,000**
- 2023 - current PI: Jan Eitel: Tracking tree growth from space: Using thermal remote sensing to improve forest production estimates in a warming world. NASA EPSCoR, **\$50,000**
- 2022 – current PI: Natalie Boelman, Co-PI: Jan Eitel: The future of the Forest-Tundra Ecotone: A synthesis that adds interactions among snow, vegetation, and wildlife to the equation. NASA ABoVE, **\$211,426**
- 2020 – 2023 PI: Elynn Enderlin, Co-PI: Jan Eitel: Cryoldaho: Building Idaho’s Cryosphere Research Community through Analysis of Terrain Effects on Seasonal Accumulation and Melt of Snow and Ice. NASA EPSCoR, **\$750,000**
- 2019 – 2022 PI: Jan Eitel: Toward an improved understanding of the mechanisms driving solar induced chlorophyll fluorescence across the structurally complex forest-tundra ecotone. NASA Terrestrial Ecology, **\$90,000**
- 2018 - 2020 PI: Jan Eitel: Toward landscape scale estimation of canopy snow interception using remotely-sensed forest structure information and snowfall event characteristics. NASA Terrestrial Ecology, **\$90,000**
- 2018 - 2022 PI: Jan Eitel: Novel remote sensing approaches for improved monitoring and protection of Forest Lands. USDA National Institute of Food and Agriculture, **\$166,000**
- 2016 - 2020 PI: Karla Eitel, Co-PIs: Jan Eitel, Teresa Cohn, Lee Vierling. ITEST: Building STEM Identify in Native American Students with UAV Technology. National Science Foundation, **\$1.2 million**
- 2015-2021 PI: Jan Eitel, Co-PIs: Boelman, N., Griffin, K. Vierling, L.A. LiDAR, passive spectral, and ecophysiological approaches to link Forest Tundra Ecotone structure and function. NASA Terrestrial Ecology, **\$1,218,228**
- 2015-2020 PI: Natalie Boelman, Co-PIs: Eitel, J.U.H., Hebblewhite, M., Prugh, L., Bohrer, G., Vierling, L.A. Animals on the move: Remotely based determination of key drivers influencing movements and habitat selection of highly mobile fauna throughout the ABoVE study domain. NASA Terrestrial Ecology, **\$1,536,289**
- 2015-2018 PI: Keefe, R., Co-PIs: Eitel, J.U.H., Smith, A., et al. Reducing Logging Fatality and Non-fatal Trauma Incidence Rates with New Real-Time Operational GPS-VHF Communications and Safety Procedures. NIH, **\$820,000**
- 2014-2015 PI: Alex Fremier, Co-PI: Jan Eitel. Lake Pend Oreille Winter Erosion Monitoring. Idaho Fish and Game, **\$150,000**
- 2014-2017 PI: Jan Eitel. StateView Program Development and Operations for the State of Idaho, USGS, **\$23,673**
- 2014-2015 PI: Joel B. Sankey, Co-PIs: Jan U.H. Eitel, Tim Andrews. Remotely operated, ground-based

- lidar system for monitoring earth surface processes, USGS Innovation Center for earth sciences, **\$56,700**
- 2012-2015 PI: Lee Vierling, Co-PIs: Jan Eitel, Natalie Boelman, Kevin Griffin. Quantifying thresholds in arctic tundra vegetation structure and ecosystem function using LiDAR and multispectral remote sensing, NASA, 2013-2015, **\$1.25 million**
- 2012-2013 PI: Jan Eitel, Co-PI: Lee Vierling. Remote Sensing for Climate Friendly Farming Specific cooperative agreement between the University of Idaho and the RapidEye AG, Satellite imagery with a value of ~ **\$10,000**
- 2011-2013 PI: Brant Miller, Co-PIs: Jan Eitel, George Veletsianos, Karla Eitel. Adventure Learning through Water and MOSS, NSF, 2012-2013, **\$170,812**
- 2011-2012 PI: Jan Eitel, Co-PI: Lee Vierling. NASA EPSCoR Collaboration Grant, NASA, **\$4000**
- 2010-2015 PI: David Brown, Co-PIs: Jan Eitel, Lee Vierling, David Huggins, Claudio Stockle, Erin Brooks. Site-Specific Climate-Friendly Farming, USDA-NIFA, 2011-2015, **\$4.6 million**
- 2010-2011 PI: Jan Eitel, Co-PI: Lee Vierling. Assessment and Review of Remote Sensing Technologies for Threat Detection, Specific cooperative agreement between the University of Idaho and the US Forest Service, 2010-2012, **\$33,000**
- 2009-2010 PI: Jan Eitel, Co-PI: Lee Vierling. Evaluation of RapidEye Satellite Imagery for Capability of Predicting Mid-season Wheat Nitrogen Status, Specific cooperative agreement between the University of Idaho and the USDA-Agricultural Research Service, **\$16,000**
- 2009-2010 PI: Jan Eitel, Co-PI: Lee Vierling. Mapping carbon sequestration potential of forest ecosystems based on RapidEye imagery, Specific cooperative agreement between the University of Idaho and the RapidEye AG, Satellite imagery with a value of ~ **\$20,000**

#### **Honors and Awards:**

- 2023 University of Idaho Mid-Career Award
- 2022 Fellowship award from the Swiss Federal institute for Snow, Forest, and Landscape (February 2022 – July 2022)
- 2021 Donald Crawford Graduate Faculty Mentoring Award, University of Idaho
- 2020 Outstanding Faculty Advisor award, College of Natural Resources, University of Idaho
- 2017 Outstanding researcher award (faculty nominated), College of Natural Resources, University of Idaho
- 2017 Outstanding teacher award (student nominated), College of Natural Resources, University of Idaho
- 2009 Outstanding graduate student, College of Natural Resources, University of Idaho
- 2009 Outstanding graduate student, Forest Resources Department, College of Natural Resources, University of Idaho

#### **SERVICE:**

##### **Major Committee Assignments:**

- 2020 NASA Remote Sensing Theory review panel, May 27-29, 2020, online panel meeting
- 2019 NASA Terrestrial Ecology review panel member, August 13-15, 2019, Washington, D.C.
- 2019 – current University of Idaho, College of Natural Resources, Committee on Committees

- 2015 – current      University of Idaho’s ad hoc Unmanned Aircraft Systems Committee member
- 2016                    NASA NESSF-Carbon Cycle Ecosystems panel member, April 6, 2016, Washington, D.C.
- 2014                    NASA Early Career Grants, Feb 10, 2014, external proposal reviewer  
Faculty search committee member for UI McCall Outdoor Science School faculty
- 2013                    NASA Terrestrial Ecology Peer Review Panel Member, Sept 17-20, 2013, Washington, D.C.
- 2010                    Member of the "Department of Interior Strategic Sciences Working Group" that was  
established in response to the Deep Water Horizon oil spill in the Gulf of Mexico

#### **Professional and Scholarly Organizations:**

- 2016-current        Terrestrial Laser Scanning International Interest Group
- 2006-2008         American Society of Agronomy
- 2006-2008         Crop Science Society of America
- 2006-2008         Soil Science Society of America
- 2005-current       American Geophysical Union
- 2013-current       AmericaView

#### **Outreach Service:**

- 2023      Invited speaker. NASA Earth to Sky Teacher Workshop, November 7, 2023
- 2023      Invited speaker. Women’s Climate Action Group’s “Climate Conversations” event on January 7,  
McCall, ID
- 2023      McCall High school English class guest speaker, March 13, 2023
- 2023      McCall High school English class guest speaker, March 14, 2023
- 2021      Invited speaker to the Ponderosa Speaker Series. Title of presentation: ‘Global climate change and  
its effects on McCall’, McCall, Idaho, April 22.
- 2021      Outreach activities focusing on climate change research with local AP English high school students,  
McCall-Donnelly High School
- 2020      Development of a web application that enables K-12 student to visualize and interact with  
daily tree growth data and environmental variables such as soil temperature, soil moisture, and air  
temperature ([https://jeitel.shinyapps.io/tree\\_growth](https://jeitel.shinyapps.io/tree_growth)).
- 2019      Instructed high school students from the Nez Perce Reservation (Idaho) in remote sensing  
technology applications for natural resource management, McCall, Idaho, July 4 2019
- 2019      Invited panelist for discussion focusing on climate change effects, McCall, Idaho, Jan 9, 2018
- 2019      Outreach activities focusing on ecological research with local AP biology high school students,  
McCall-Donnelly High School
- 2018      Co-organized and co-chaired an AGU session focusing on ‘Earth Science Research and Change  
Detection Using Multitemporal Lidar and Structure from Motion’, Washington DC, December 14,  
2018
- 2018      Outreach activities focusing on ecological research with local AP biology students, McCall-  
Donnelly High School
- 2018      Invited presenter at ‘Outdoor Conversations’ organized by the McCall Public library. Presentation  
focused on my northern treeline work in Alaska and Canada.
- 2018      Helped prepare and deliver a 10-day summer camp with the goal to improve Native American  
student science identity through culturally relevant use of UAV technology for managing natural  
resources.
- 2018      STEM Fair, November 7, 2018, Boise, Idaho
- 2017      Invited presenter at the IARPC Terrestrial Ecology Group meeting, July 2017
- 2017      Development and delivery of agricultural outreach program to K-12 students in Grangeville, ID,  
November and December 2017
- 2017      Guest lecturer at Lapwai Highschool, November 9, 2017, Lapwai, Idaho
- 2017      Invited speaker at the Nez Perce State Tribal Education Partnership Project (STEP) meeting, June

- 20, 2017, McCall, Idaho
- 2017 Helped prepare and deliver a 10-day summer camp with the goal to improve Native American student science identity through culturally relevant use of UAV technology for managing natural resources.
- 2016 Co-organizer and presenter of 'Terrestrial Laser Scanning for Ecology – New field technology to help measure and monitor vegetation structure' workshop, December 2<sup>nd</sup>, 2016 in Fremantle, Australia.
- 2016 Co-developed and delivered a one-day outdoor class for pre-kindergarten children, May 2016
- 2015 Invited presenter during May AmericaView membership meeting, May 13<sup>th</sup>, 2015
- 2015 Invited presenter during the 'Drones for Forestry' workshop, February 27, 2015 in Coeur d'Alene, Idaho. Total participants: 37, contact hours: 3 hours.
- 2014 Invited speaker at the Southwest Idaho GIS User Group Meeting, McCall, ID, June 13<sup>th</sup>, 2014
- 2014 Congressional visits in Washington DC to promote the work of AmericaView
- 2014 AmericaView outreach committee member
- 2013 Congressional visits in Washington DC to promote the work of AmericaView
- 2013 Organized two, 6 day long remote sensing summer camps for K-12 students
- 2013 Outdoor guest lecture to the Boise State Biology Club, May 5, 2013, McCall, Idaho
- 2012 "Muddy Squirrel" service learning project in collaboration with the US Forest Service Muddy Squirrel Project
- 2012 "Phoebe Creek Restoration" service learning project in collaboration with the Nez Perce Tribe Watershed Division and the US Forest Service.
- 2012 Speaker: '*MY vita, MY research, UI field research station*' – Rotary, February 28, 2012, McCall, Idaho
- 2010 Speaker: '*Low-cost high tech: incorporating technology, engineering, and math into the science classroom*' - EPSCoR Teacher Weekend, McCall, Idaho
- 2010 Discover Engineering Day, '*Natural Hazards and Engineering Challenges for the Urban-Wildland Interface*', Boise State University
- 2009 Speaker: '*The use of terrestrial LiDAR to map soil microtopography*' - EPSCoR Teacher Weekend, McCall, Idaho
- 2009 Speaker: '*The use of terrestrial LiDAR to map soil microtopography*' - Upward Bound Math Science, McCall Outdoor Science School, McCall, Idaho
- 2008 Speaker: '*Ground-optical sensing of nitrogen in dryland wheat*' - USDA Agricultural Research Service field day, Pendleton, Oregon
- 2007 Speaker: '*Aerial sensing of nitrogen in hard red spring wheat*' - USDA Agricultural Research Service field day, Pendleton, Oregon
- 2007 Speaker: '*Radiative transfer model inversion to estimate nitrogen status in wheat*' - Umatilla County, Oregon State University extension weed tour, Echo, Oregon