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I. GENERAL INFORMATION

A. Education

- 2003 Ph.D. in Geography, University of California Santa Barbara
- 1999 M.A. in Geography, University of California Santa Barbara
- 1997 B.S. in Geography with High Honors, Pennsylvania State University

B. Research and Teaching Interests

Remote sensing of vegetation, imaging spectroscopy, wildfire, firefighter safety, fire and climate, greenhouse gas plume detection and concentration retrieval, natural hazards, human-environment interactions

C. Professional Experience

- 2019-present Chair, Department of Geography, University of Utah
- 2014-present Professor, Department of Geography, University of Utah
- 2008-2018 Adjunct Appointment, Department of Biology, University of Utah
- 2009-2014 Associate Professor, Department of Geography, University of Utah
- 2004-2009 Assistant Professor, Department of Geography, University of Utah
- 2003-2004 Postdoctoral Researcher, Department of Geography, University of California Santa Barbara

D. Professional Honors, Fellowships, and Awards

- 2018 Reviewer Excellence Award, *Remote Sensing of Environment*
- 2014 University of Utah Honors Professorship
- 2014 University of Utah College of Social and Behavioral Science Senior Research Award
- 2011 University of Utah Department of Geography Outstanding Mentor/Advisor Award
- 2010 University of Utah Department of Geography Outstanding Mentor/Advisor Award
- 2007 University of Utah College of Social and Behavioral Science Junior Faculty Superior Research Award
- 2003 University of California Santa Barbara Department of Geography Excellence in Research Award
- 2001 University of California Santa Barbara Department of Geography Excellence in Teaching Award

- 2000 NASA Earth System Science Fellowship
 1997 Grundy-Haven Writing Award, College of Earth and Mineral Science,
 Pennsylvania State University

II. RESEARCH

A. Refereed Publications 115 total. Student collaborators are underlined; direct advisees and lab members are double underlined.

- 2022 Mistick, K.A., Dennison, P.E., Campbell, M.J., Thompson, M.P., 2022. Using geographic information to analyze wildland firefighter situational awareness: Impacts of spatial resolution on visibility assessment. *Fire*, 5(5), 151. <https://doi.org/10.3390/fire5050151>
- Saltiel, T.M., Dennison, P.E., Campbell, M.J., Thompson, T., Hambrecht, K., 2022. Tradeoffs between UAS spatial resolution and accuracy for deep learning semantic segmentation applied to wetland vegetation species mapping. *Remote Sensing*, 14(11), 2703. <https://doi.org/10.3390/rs14112703>
- Campbell, M.J., Dennison, P.E., Thompson, M.P., 2022. Predicting the variability in pedestrian travel rates and times using crowdsourced GPS data. *Computers, Environment and Urban Systems*, 97, 101866. <https://doi.org/10.1016/j.compenvurbsys.2022.101866>
- Campbell, M.J., Dennison, P.E., Thompson, M.P., Butler, B.W., 2022. Assessing potential safety zone suitability using a new online mapping tool. *Fire* 5, 5. <https://doi.org/10.3390/fire5010005> *featured paper*
- Lamb, B.T., Dennison, P.E., Hively, W.D., Kokaly, R.F., Serbin, G., Wu, Z., Dabney, P.W., Masek, J.G., Campbell, M., Daughtry, C.S.T. Optimizing Landsat Next shortwave infrared bands for crop residue characterization. *Remote Sensing*, 14(23), 6128. <https://doi.org/10.3390/rs14236128>
- Jacob, D.J., Varon, D.J., Cusworth, D.H., Dennison, P.E., Frankenberg, C., Gautam, R., Guanter, L., Kelley, J., McKeever, J., Ott, L.E., Poulter, B., Qu, Z., Thorpe, A.K., Worden, J. R., and Duren, R.M., 2022. Quantifying methane emissions from the global scale down to point sources using satellite observations of atmospheric methane. *Atmospheric Chemistry and Physics*, 22, 9617–9646. <https://doi.org/10.5194/acp-2022-246>
- Peterson, D. A., Thapa, L. H., Saide, P. E., Soja, A. J., Gargulinski, E. M., Hyer, E. J., Weinzierl, B., Dollner, M., Schöberl, M., Papin, P. P., Kondragunta, S., Camacho, C. P., Ichoku, C., Moore, R. H., Hair, J. W., Crawford, J. H., Dennison, P. E., Kalashnikova, O. V., Bennese, C. E., Bui, T. P., DiGangi, J. P., Diskin, G. S., Fenn, M. A., Halliday, H. S., Jimenez, J., Nowak, J. B., Robinson, C., Sanchez, K., Shingler, T. J., Thornhill, L., Wiggins, E. B., Winstead, E., Xu, C., 2022. Measurements from inside a thunderstorm driven by wildfire: The 2019 FIREX-AQ field experiment, *Bulletin of the American Meteorological Society*, 103, E2140–E2167. <https://doi.org/10.1175/BAMS-D-21-0049.1>

- 2021 Foote, M.D., Dennison, P.E., Sullivan, P.R., O'Neill, K.B., Thorpe, A.K., Thompson, D.R., Cusworth, D.H., Duren, R., Joshi, S.C., 2021. Impact of scene-specific enhancement spectra on matched filter greenhouse gas retrievals from imaging spectroscopy. *Remote Sensing of Environment* 264, 112574. <https://doi.org/10.1016/j.rse.2021.112574>
- Campbell, M.J., Dennison, P.E., Kerr, K.L., Brewer, S.C., Anderegg, W.R.L., 2021. Scaled biomass estimation in woodland ecosystems: Testing the individual and combined capacities of satellite multispectral and lidar data. *Remote Sensing of Environment* 262, 112511. <https://doi.org/10.1016/j.rse.2021.112511>
- Hively, W.D., Lamb, B.T., Daughtry, C.S.T., Serbin, G., Dennison, P., Kokaly, R.F., Wu, Z., Masek, J.G., 2021. Evaluation of SWIR crop residue bands for the Landsat Next mission. *Remote Sensing*, 13, 3718. <https://doi.org/10.3390/rs13183718>
- Cusworth, D.H., Duren, R.M., Thorpe, A.K., Eastwood, M.L., Green, R.O., Dennison, P.E., Frankenberg, C., Heckler, J.W., Asner, G.P., Miller, C.E., 2021. Quantifying global power plant carbon dioxide emissions with imaging spectroscopy. *AGU Advances* 2, e2020AV000350 <https://doi.org/10.1029/2020AV000350>
- Cusworth, D.H., Duren, R.M., Thorpe, A.K., Pandey, S., Maasackers, J.D., Aben, I., Jervis, D., Varon, D.J., Jacob, D.J., Randles, C.A., Gautam, R., Omara, M., Schade, G.W., Dennison, P.E., Frankenberg, C., Gordon, D., Lopinto, E., Miller, C.E., 2021. Multisatellite imaging of a gas well blowout enables quantification of total methane emissions. *Geophysical Research Letters* 48, e2020GL090864. <https://doi.org/10.1029/2020GL090864>
- Cusworth, D.H., Duren, R.M., Thorpe, A.K., Olson-Duval, W., Heckler, J., Chapman, J.W., Eastwood, M.L., Helmlinger, M.C., Green, R.O., Asner, G.P., Dennison, P.E., Miller, C.E., 2021. Intermittency of Large Methane Emitters in the Permian Basin. *Environmental Science & Technology Letters*, 8, 7, 567–573. <https://doi.org/10.1021/acs.estlett.1c00173>
- Cawse-Nicholson, K., Townsend P.A., Schimel, D., Assiri, A.M., Blake, P.L., Buongiorno, M.F., Campbell, P., Carmon, N., Casey, K.A., Correa-Pabón, R.E., Dahlin, K.M., Dashti, H., Dennison, P.E., Dierssen, H., Erickson, A., Fisher, J.B., Frouin, R., Gatebe, C.K., Gholizadeh, H., Gierach, M., Glenn, N.F., Goodman, J.A., Griffith, D.M., Guild, L., Hakkenberg, C.R., Hochberg, E.J., Holmes, T.R.H., Hu, C., Hulley, G., Huemmrich, K.F., Kudela, R.M., Kokaly, R.F., Lee, C.M., Martin, R., Miller, C.E., Moses, W.J., Muller-Karger, F.E., Ortiz, J.D., Otis, D.B., Pahlevan, N., Painter, T.H., Pavlick, R., Poulter, B., Qi, Y., Realmuto, V.J., Roberts, D., Schaepman, M.E., Schneider, F.D., Schwandner, F.M., Serbin, S.P., Shiklomanov, A.N., Stavros, E.N., Thompson, D.R., Torres-Perez, J.L., Turpie, K.R., Tzortziou, M., Ustin, S., Yu, Q., Yusup, Y., Zhang, Q., 2021. NASA's surface biology and geology designated observable: A perspective on surface imaging algorithms. *Remote Sensing of*

- Environment 257, 112349. <https://doi.org/10.1016/j.rse.2021.112349>
- 2020 Sullivan, P.R., Campbell, M.J., Dennison, P.E., Brewer, S.C., Butler, B.W., 2020. Modeling wildland firefighter travel rates by terrain slope: Results from GPS-tracking of Type 1 crew movement. *Fire* 3, 1–14. <https://doi.org/10.3390/fire3030052>
- Foote, M.D., Dennison, P.E., Thorpe, A.K., Thompson, D.R., Jongaramrungruang, S., Frankenberg, C., Joshi, S.C., 2020. Fast and accurate retrieval of methane concentration from imaging spectrometer data using sparsity prior. *IEEE Transactions on Geoscience and Remote Sensing* 58, 6480–6492. <https://doi.org/10.1109/TGRS.2020.2976888>
- Campbell, M.J., Dennison, P.E., Tune, J.W., Kannenberg, S.A., Kerr, K.L., Coddling, B.F., Anderegg, W.R.L., 2020. A multi-sensor, multi-scale approach to mapping tree mortality in woodland ecosystems. *Remote Sensing of Environment* 245, 111853. <https://doi.org/10.1016/j.rse.2020.111853>
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- Hansen, C.H., Burian, S.J., Dennison, P.E., Williams, G.P., 2020. Evaluating historical trends and influences of meteorological and seasonal climate conditions on lake chlorophyll *a* using remote sensing. *Lake and Reservoir Management*, 36, 45-63. <https://doi.org/10.1080/10402381.2019.1632397>
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- 2019 Dennison, P.E., Qi, Y., Meerdink, S.K., Kokaly, R.F., Thompson, D.R., Daughtry, C.S.T., Quemada, M., Roberts, D.A., Gader, P.D., Wetherley, E.B., Numata, I., Roth, K.L., 2019. Comparison of methods for modeling fractional cover using simulated satellite hyperspectral imager spectra. *Remote Sensing* 11, 2072. <https://doi.org/10.3390/rs11182072> *featured paper*

Ayasse, A.K., Dennison, P.E., Foote, M., Thorpe, A.K., Joshi, S., Green, R.O., Duren, R.M., Thompson, D.R., Roberts, D.A., 2019. Methane mapping with future satellite imaging spectrometers. Remote Sensing, 11, 3054.

<https://doi.org/10.3390/rs11243054>

Campbell, M.J., Dennison, P.E., Butler, B.W., Page, W.G., 2019. Using crowdsourced fitness tracker data to model the relationship between slope and travel rates. Applied Geography 106, 93–107.

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Campbell, Michael J., Page, W.G., Dennison, P.E., Butler, B.W., 2019. Escape Route Index: A spatially-explicit measure of wildland firefighter egress capacity. Fire 2, 40. <https://doi.org/10.3390/fire2030040>

Li, D., Cova, T.J., Dennison, P.E., 2019a. Setting wildfire evacuation triggers by coupling fire and traffic simulation models: A spatiotemporal GIS approach. Fire Technology 55, 617–642. <https://doi.org/10.1007/s10694-018-0771-6>

Li, D., Cova, T.J., Dennison, P.E., Wan, N., Nguyen, Q.C., Siebeneck, L.K., 2019b. Why do we need a national address point database to improve wildfire public safety in the U.S.? International Journal of Disaster Risk Reduction 39, 101237. <https://doi.org/10.1016/j.ijdrr.2019.101237>

Mishra, M.K., Gupta, A., John, J., Shukla, B.P., Dennison, P., Srivastava, S.S., Kaushik, N.K., Misra, A., Dhar, D., 2019. Retrieval of atmospheric parameters and data-processing algorithms for AVIRIS-NG Indian campaign data. Current Science 116, 1089–1100. <https://doi.org/10.18520/cs/v116/i7/1089-1100>

Waigl, C.F., Prakash, A., Stuefer, M., Verbyla, D., Dennison, P., 2019. Fire detection and temperature retrieval using EO-1 Hyperion data over selected Alaskan boreal forest fires. International Journal of Applied Earth Observation and Geoinformation 81, 72–84. <https://doi.org/10.1016/j.jag.2019.03.004>

Fowler, M., Rad, A.M., Utych, S., Adams, A., Alamian, S., Pierce, J., Dennison, P., Abatzoglou, J., AghaKouchak, A., Montrose, L., Sadegh, M. A dataset on human perception of and response to wildfire smoke. Scientific Data, 6, 229. <https://doi.org/10.1038/s41597-019-0251-y>

Yebra, M., Scortechini, G., Badi, A., Beget, M.E., Boer, M.M., Bradstock, R., Chuvieco, E., Danson, F.M., Dennison, P., Resco de Dios, V., Di Bella, C.M., Forsyth, G., Frost, P., Garcia, M., Hamdi, A., He, B., Jolly, M., Kraaij, T., Martín, M.P., Mouillot, F., Newnham, G., Nolan, R.H., Pellizzaro, G., Qi, Y., Quan, X., Riaño, D., Roberts, D., Sow, M., Ustin, S., 2019. Globe-LFMC, a global plant water status database for vegetation ecophysiology and wildfire applications. Scientific Data 6, 155. <https://doi.org/10.1038/s41597-019-0164-9>

2018 Campbell, M.J., Dennison, P.E., Hudak, A.T., Parham, L.M., Butler, B.W., 2018. Quantifying understory vegetation density using small-footprint airborne lidar. Remote Sensing of Environment 215, 330–342. <https://doi.org/10.1016/j.rse.2018.06.023>

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- Meng, R., Dennison, P.E., Zhao, F., Shendryk, I., Rickert, A., Hanavan, R.P., Cook, B.D., Serbin, S.P., 2018. Mapping canopy defoliation by herbivorous insects at the individual tree level using bi-temporal airborne imaging spectroscopy and LiDAR measurements. *Remote Sensing of Environment* 215, 170–183. <https://doi.org/10.1016/j.rse.2018.06.008>
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- Dai, J., Roberts, D., Dennison, P., Stow, D., 2018. Spectral-radiometric differentiation of non-photosynthetic vegetation and soil within Landsat and Sentinel 2 wavebands. *Remote Sensing Letters* 9, 733–742. <https://doi.org/10.1080/2150704X.2018.1470697>
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- Smith, R.M., Williamson, J.C., Pataki, D.E., Ehleringer, J., Dennison, P., 2018. Soil carbon and nitrogen accumulation in residential lawns of the Salt Lake Valley, Utah. *Oecologia* 187, 1107–1118. <https://doi.org/10.1007/s00442-018-4194-3>
- 2017 Campbell, M.J., Dennison, P.E., Butler, B.W., 2017a. A LiDAR-based analysis of the effects of slope, vegetation density, and ground surface roughness on travel rates for wildland firefighter escape route mapping. *International Journal of Wildland Fire* 26, 884–895. <https://doi.org/10.1071/WF17031>
- Campbell, M.J., Dennison, P.E., Butler, B.W., 2017b. Safe separation distance score: a new metric for evaluating wildland firefighter safety zones using lidar. *International Journal of Geographical Information Science* 31, 1448–1466. <https://doi.org/10.1080/13658816.2016.1270453>
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- Bart, R.R., Tague, C.L., Dennison, P.E., 2017. Modeling annual grassland phenology along the central coast of California. *Ecosphere* 8, e01875. <https://doi.org/10.1002/ecs2.1875>
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- Meng, R., Wu, J., Schwager, K.L., Zhao, F., Dennison, P.E., Cook, B.D., Brewster, K., Green, T.M., Serbin, S.P., 2017. Using high spatial resolution satellite imagery to map forest burn severity across spatial scales in a Pine Barrens ecosystem. *Remote Sensing of Environment* 191, 95–109. <https://doi.org/10.1016/j.rse.2017.01.016>
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- 2016 Qi, Y., Jolly, W.M., Dennison, P.E., Kropp, R.C., 2016. Seasonal relationships between foliar moisture content, heat content and biochemistry of lodgepole line and big sagebrush foliage. *International Journal of Wildland Fire* 25, 574–578. <https://doi.org/10.1071/WF15156>
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- 2007 Dennison, P.E., Cova, T.J., Mortiz, M.A., 2007a. WUIVAC: A wildland-urban interface evacuation trigger model applied in strategic wildfire scenarios. *Natural Hazards* 41, 181–199. <https://doi.org/10.1007/s11069-006-9032-y>
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B. Grants

1. Funded Extramural Grants *All amounts are funding to Univ. of Utah unless otherwise indicated*

- 2022-2023 Retrieval sensitivity tests for improved CNN performance. *Carbon Mapper*, Principal Investigator, \$50,462
- 2022-2023 Using mobile and airborne laser scanner data to quantify and map fuel consumption. *US Forest Service*, Co-Principal Investigator, \$50,000.
- 2021-2024 Improving wildland firefighter safety through geospatial modeling of lookouts, communications, escape routes, and safety zones, *NSF*, Co-Principal Investigator, \$392,554
- 2021-2024 Lookouts, Communication, Escape Routes, and Safety Zones (LCES): Developing geospatial analytics to improve LCES implementation and enhance wildland firefighter safety, *US Forest Service*, Principal Investigator, \$500,151
- 2019-2024 Development of algorithm for firefighter travel rates as function of environment and crew factors, *US Forest Service*, Principal Investigator, \$298,016
- 2019-2022 Multi-tiered carbon monitoring system, *NASA*, Co-Investigator, \$1,472,705 total (\$181,953 Utah)
- 2018-2020 Use of vegetation cover and topography to determine optimum escape route location and travel time for wildland firefighters, *US Forest Service*, Principal Investigator, \$53,785
- 2017-2019 Improved trace gas plume detection using Indian and US AVIRIS-NG data, *NASA*, Principal Investigator, \$184,928 total (\$159,968 Utah)
- 2017-2021 Dynamic impacts of environmental change and biomass harvesting on woodland ecosystems and traditional livelihoods, *NSF*, Coupled Natural Human Systems Program, Co-Principal Investigator, \$1,770,459
- 2016-2017 One-time investment enabling routine production of a terrestrial ecosystem product for green vegetation, non-photosynthetic vegetation, and substrate fractions for AVIRIS, *NASA*, Co-Investigator, \$30,000
- 2015-2017 Development and evaluation of a wildfire burn severity mapping tool using Google Earth Engine, *US Forest Service*, Principal Investigator, \$40,815
- 2016-2018 Exploration into use of GIS to select and rank the effectiveness of wildland firefighter safety zones 2, *US Forest Service*, Principal Investigator, \$59,150
- 2014-2016 Exploration into use of GIS to select and rank the effectiveness of wildland firefighter safety zones, *US Forest Service*, Principal Investigator, \$29,124

- 2013-2016 Ecological Spectral Information System (ESIS): Integration of Spectral Data with Measurements of Vegetation Functional Traits, *NASA*, Co-Investigator, \$60,048
- 2013-2015 Geographic Data Chapter for the Chemical and Biological (CB) Agent Effects Manual 1, *Defense Threat Reduction Agency*, Co-Investigator, \$10,446 Geography
- 2013-2015 HypsIRI Discrimination of Plant Species and Functional Types Along a Strong Environmental-Temperature Gradient, *NASA*, Co-Principal Investigator, \$135,419
- 2011-2015 Near Real Time Science Processing Algorithm for Live Fuel Moisture Content for the MODIS Direct Readout System, *NASA*, Co-Investigator, \$181,562
- 2011-2014 Protective Action Triggers, *NSF*, Infrastructure Management and Extreme Events Program, Co-Principal Investigator, \$225,322
- 2011-2013 The Projected Effects of Climate Change Induced Changes in Vegetation on Future Hydrologic Energy Generation in California, *California Energy Commission*, Co-Principal Investigator, \$113,856
- 2011-2014 Climatic Drivers of Wildland Fire Events and Burn Severity, *Bureau of Land Management (BLM)*, Principal Investigator, \$34,999
- 2010-2014 Greater Sage-Grouse Habitat Use, *Utah Division of Wildlife Resources*, subcontract from Brigham Young University, \$15,600
- 2010-2012 Predicting phenological plant stages in the Upper Colorado Basin, *BLM*, Principal Investigator, \$111,000
- 2009 Remote Monitoring of Live Fuel Moisture Using a Soil Moisture Proxy, *BLM*, Principal Investigator, \$6,000
- 2008-2011 Spatial, spectral, and temporal requirements for improved hyperspectral mapping of plant functional type, plant species, canopy biophysics, and canopy biochemistry, *NASA*, Co-Investigator, \$148,020
- 2008 Monitoring tamarisk defoliation by the saltcedar leaf beetle along the middle Colorado River watershed, *State of Utah*, Cooperative Agriculture Pest Survey Program, Principal Investigator, \$11,782
- 2007-2013 Hyperspectral algorithms for mapping hot object temperature and trace gas emission, *National Geospatial-Intelligence Agency (NGA)*, Principal Investigator, \$449,973 total (\$288,309 Utah)
- 2006-2010 Modeling and measuring the spatio-temporal variability of methane emissions from tropical dambo wetlands, *NSF*, Geography and Regional Science Program, Co-Principal Investigator, \$84,991

- 2005-2006 An integrated field-based system for fusion of hyperspectral and interferometric radar data to support feature detection, surface characterization, and change detection, *Department of Defense*, Co-Investigator, \$197,391
- 2004-2007 Multisite integration of LIDAR and hyperspectral data for improved estimation of carbon stocks and fluxes, *NASA*, Co-Investigator, \$69,904
- 2004-2007 Mechanisms controlling annual, interannual, and decadal changes in California's carbon budget, *NASA*, Co-Investigator, \$26,997
- 2004-2006 IDL/ENVI code for endmember selection for advanced spectral mixture analysis, *NGA*, Co-Investigator, \$42,407
- 2000-2003 Mapping wildland fuels using combined hyperspectral and synthetic aperture radar for fire hazard assessment, *NASA*, Earth System Science Fellowship Program

2. Funded Intramural Grants

- 2008-2009 University of Utah Seed Grant, Principal Investigator
- 2007 University of Utah College of Social and Behavioral Science Proposal Initiative Grant
- 2007-2008 University of Utah Seed Grant, Co-Principal Investigator
- 2006-2007 University of Utah Synergy Program, Urban Systems Research Center, Co-Principal Investigator
- 2005 University of Utah University Teaching Grant

C. Book Chapters

- 2019 Bernardes, S., Madden, M., Astuti, I., Chuvieco, E., Cotten, D., Dennison, P.E., et al. 2019. Image processing and analysis methods. In *Manual of Remote Sensing*, 4th Edition, Ed. S. Morain, M. Renslow and A. Budge. American Society for Photogrammetry and Remote Sensing, 631-868.
- 2018 Veraverbeke, S., P. Dennison, P., Gitas, I., Hulley, G., Kalashnikova, O., Katagis, T., Kuai, L., Meng, R., Roberts, D., Stavros, N. 2018. Hyperspectral remote sensing of fire: A review. In *Advanced Applications in Remote Sensing of Agricultural Crops and Natural Vegetation*, Ed. Thenkabail, P.S., Lyon, J.G., Huete, A., CRC Press.
- 2017 Roberts, D.A., Alonzo, M., Wetherley, E., Dudley, K., Dennison, P. 2017. Multiscale analysis of urban areas using mixing models. In *Why Scale Still Matters: Applications That Advance GIScience and Remote Sensing*. Ed. Quattrochi, D.A., et al., Taylor Francis, 247-282.

- 2009 Ustin, S.L., Riaño, D., Koltunov, A., Roberts, D.A., Dennison, P.E., 2009. Mapping fire risk in Mediterranean ecosystems of California: Vegetation type, density, invasive species, and fire frequency, in: *Earth Observation of Wildland Fires in Mediterranean Ecosystems*. pp. 41–53. https://doi.org/10.1007/978-3-642-01754-4_4

D. White Papers and Reports

- 2022 Dennison, P., B. Lamb, M. Campbell, R.F. Kokaly, W.D. Hively, E. Vermote, P. Dabney, and G. Serbin. Multispectral band recommendations for global measurement of non-photosynthetic vegetation cover. White paper for USGS Landsat Next team.
- 2016 Dennison, P.E., D.A. Roberts, J.Q. Chambers, C.S.T. Daughtry, J.P. Guerschman, R.F. Kokaly, G.S. Okin, P.F. Scarth, P.L. Nagler, and C.J. Jarchow, 2016. Global Measurement of Non-Photosynthetic Vegetation. RFI-2 White paper for the 2017-2027 Decadal Survey for Earth Science and Applications from Space, National Academies.
- Schoennagel, T., P. Morgan, J. Balch, P. Dennison, B. Harvey, R. Hutto, M. Krawchuk, M. Moritz, R. Rasker, and C. Whitlock, 2016. Insights from wildfire science: A resource for fire policy discussions. *Headwaters Economics*, <http://headwaterseconomics.org/wphw/wp-content/uploads/wildfire-insights-paper.pdf>
- Stavros, E.N., A.A. Bloom, T. Brown, J. Coen, P. Dennison, L. Giglio, R. Green, E. Hinkley, Z. Holden, S. Hook, W. Johnson, M.E. Miller, B. Peterson, B. Quayle, C. Ramirez, J. Randerson, D. Schimel, W. Schroeder, A. Soja, and M. Tosca, 2016. The Role of Fire in the Earth System. RFI-2 White paper for the 2017-2027 Decadal Survey for Earth Science and Applications from Space, National Academies.
- 2015 Dennison, P., S. Veraverbeke, N.H.F. French, M. Huesca, Y. Jin, T. Lodoba, J. Randerson, D. Roberts, B.M. Rogers, E.N. Stavros, A. Tayyebi, M. Tosca, and J. Wang, 2015. Burning Questions: Critical Needs for Remote Sensing of Fire Impacts on Ecosystems. White paper for initiation of the 2017-2027 Decadal Survey for Earth Science and Applications from Space, National Academies.
- Dennison, P.E., G.K. Fryer, M.J. Campbell, T.J. Cova, and B.W. Butler, 2015. Assessing Firefighter Safety Zones Using LIDAR Remote Sensing. *Fire Management Today*, 74(4), 32-35.
- 2011 Realmuto, V, I. Csiszar, P. Dennison, M. Foote, L. Giglio, M. Ramsey, G. Vaughan, M. Wooster, and R. Wright, 2011. HypsIRI High-Temperature Saturation Study. Jet Propulsion Laboratory, National Aeronautics and Space Administration.

- 2009 Peterson, S.H., M.E. Morais, J.M. Carlson, P.E. Dennison, D.A. Roberts, M.A. Moritz, and D.R. Weise, 2009. Spatial modeling of fire in shrublands using HFire. Res. Pap. PSW-RP-259. Albany, CA: U.S. Department of Agriculture, Forest Service, Pacific Southwest Research Station. 44 p.

E. Datasets

- 2020 Dennison, P.E., P. Sullivan, K. O'Neill, and M. Foote, 2020. Benchmark dataset for methane and carbon dioxide plumes. https://avirisng.jpl.nasa.gov/benchmark_methane_carbon_dioxide.html
- 2019 Dennison, P.E., C.S.T. Daughtry, M. Quemada, S.K. Meerdink, P.D. Gader, E.B. Wetherley, D.A. Roberts, and R.F. Kokaly, 2019. Fractional cover simulated VSWIR dataset Version 2, noise and atmospheric correction artifacts included. Published on EcoSIS.org, <https://doi.org/doi:10.21232/p1qj-e977>
- Dennison, P.E., C.S.T. Daughtry, M. Quemada, S.K. Meerdink, P.D. Gader, E.B. Wetherley, D.A. Roberts, and R.F. Kokaly, 2019. Fractional cover simulated VSWIR dataset Version 2, original 10nm spectra. Published on EcoSIS.org, <https://doi.org/doi:10.21232/m9qh-gf67>
- 2018 Dennison, P.E., 2018. Fire emitted radiance spectra. Published on EcoSIS.org, <https://doi.org/doi:10.21232/C2NH2G>
- Dennison, P.E., 2018. Range Creek Utah species spectra. Published on EcoSIS.org, <https://doi.org/doi:10.21232/C2HM1W>
- Dennison, P.E., 2018. Rush Valley Utah sagebrush time series. Published on EcoSIS.org, <https://doi.org/doi:10.21232/C2C083>
- Dennison, P.E., C.S.T. Daughtry, M. Quemada, S.K. Meerdink, P.D. Gader, E.B. Wetherley, D.A. Roberts, and R.F. Kokaly, 2018. Fractional cover simulated VSWIR dataset, noise and atmospheric correction artifacts included. Published on EcoSIS.org, <https://doi.org/doi:10.21232/C2S363>
- Dennison, P.E., C.S.T. Daughtry, M. Quemada, S.K. Meerdink, P.D. Gader, E.B. Wetherley, D.A. Roberts, and R.F. Kokaly, 2018. Fractional cover simulated VSWIR dataset, original 10nm spectra. Published on EcoSIS.org, <https://doi.org/doi:10.21232/C2ND46>
- Dennison, P.E., and M.E. Gardner, 2018. Hawaii 2000 vegetation species spectra. Published on EcoSIS.org, <https://doi.org/doi:10.21232/C2HT0K>
- Dennison, P.E., and D.A. Roberts, 2018. Santa Monica Mountains vegetation species spectra. Published on EcoSIS.org, <https://doi.org/doi:10.21232/C2894R>
- Qi, Y. and P.E. Dennison, 2018. Missoula Montana lodgepole pine & big sagebrush time series. Published on EcoSIS.org, <https://doi.org/10.21232/C2D08D>

F. Conference Papers

Student authors underlined; direct advisees are double underlined.

- 2020 Thompson, D.R., B.D. Bue, R. Duren, C.D. Elder, C. Frankenberg, R.O. Green, S.J. Hook, G. Hulley, C.E. Miller, A.K. Thorpe, and P.E. Dennison, 2020. Regional surveys of CH₄ point sources across North America: Campaigns, algorithms, and results. *2020 IEEE International Geoscience and Remote Sensing Symposium*.
- 2016 Hansen, C.H., P. Dennison, S. Burian, M. Barber, and G. William, 2016s. Hindcasting water quality in an optically complex system. *Proceedings of the 13th International Conference on Modelling, Monitoring and Management of Water Pollution*.
- 2015 Li, D., T.J. Cova, and P.E. Dennison, 2015. An open source software system for setting wildfire evacuation triggers. *1st ACM SIGSPATIAL International Workshop on the Use of GIS in Emergency Management*.
- 2013 Dennison, P.E., A.K. Thorpe, D.A. Roberts, and R.O. Green, 2013. Modeling sensitivity of imaging spectrometer data to carbon dioxide and methane plumes. *Proceedings of the 5th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing*.
- Roberts, D.A., P. Dennison, K. Roth, and G. Hulley, 2013. Relationships between species composition, fractional cover, and land surface temperature in a Mediterranean ecosystem. *Proceedings of the 5th Workshop on Hyperspectral Image and Signal Processing: Evolution in Remote Sensing*.
- Lugumira, J.S., D.J. Brown, M. Swanson, P.E. Dennison, and L. Vierling, 2013. Using aerial gamma-ray and terrain data as lone predictors of dambo catenary units. *GlobalSoilMap: Basis of the Global Spatial Soil Information System - Proceedings of the 1st GlobalSoilMap Conference*, 447-453.
- 2012 Thorpe, A.K., D.A. Roberts, P.E. Dennison, E.S. Bradley and C.C. Funk, 2012. Point source emissions mapping using Airborne Visible/Infrared Imaging Spectrometer data. *Proceedings of the SPIE Defense, Security + Sensing Conference*.
- 2010 Nagler, P.L., T. Brian, K. Hultine, P.E. Dennison, and E.P. Glenn, 2010. Modeling the phenology and spread of *Tamarix* beetle infestation and impact on water savings. *Proceedings of the ISPRS Technical Commission VIII Symposium*.
- 2009 Hultine, K.R., P.L. Nagler, P.E. Dennison, S.E. Bush, and J.R. Ehleringer, 2009. Tamarisk (*Tamarix* spp.) water fluxes before, during and after episodic defoliation by the saltcedar leaf beetle. *Proceedings of the Seventh International Workshop on Sap Flow*, 293-302.
- 2008 Hansen, M.K., P.E. Dennison, and D.J. Brown, 2008. Classifying Ugandan wetland soils using multispectral and topographic remote sensing data. *3rd Global Workshop on Digital Soil Mapping*.

- Dennison, P.E., D.A. Roberts and L. Kammer, 2008. Wildfire detection for retrieving fire temperature from hyperspectral data. *ASPRS 2008 Annual Conference*.
- Hansen, M.K., P.E. Dennison, S.A. Graves, and D.J. Brown, 2008. Ugandan dambo wetland classification using multispectral and topographic remote sensing data. *ASPRS 2008 Annual Conference*.
- 2007 Jeyachandran, I., S.J. Burian, P.E. Dennison, G. Nash, and B. Dudley-Murphy, 2007. Techniques to estimate urban canopy parameters using satellite data. *Seventh Symposium on the Urban Environment*.
- 2006 Roberts, D.A., P.E. Dennison, S. Peterson, S. Sweeney, and J. Rechel, 2006. AVIRIS and MODIS measures of live fuel moisture and fuel condition in California shrubland ecosystems. *3rd International Fire Ecology and Management Congress*.
- Natour, B., P.E. Dennison, and D.A. Roberts, 2006. Estimation of tree height using small-footprint lidar measurements in the Wind River Experimental Forest. *Eleventh Biennial USDA Forest Service Remote Sensing Applications Conference*.
- 2005 Roberts, D.A., S.H. Peterson, P.E. Dennison, J. Rechel, and J.W. van Wagtenonk, 2005. Fine spatial, spectral, and temporal characterization of wildfire fuels through the integrated analysis of imaging spectrometry and coarser resolution broad band data. *Proc. 5th International Workshop on Remote Sensing and GIS Applications to Forest Fire Management*.
- Peterson, S.H., N.C. Goldstein, M.L. Clark, K.Q. Halligan, P. Schneider, P.E. Dennison and D.A. Roberts, 2005. Sensitivity analysis of a model of the 2003 Simi Wildfire event. *GeoComputation 2005*.
- 2004 Dennison, P.E., D.A. Roberts, R.O. Green, J.L. Rechel and S.H. Peterson, 2004. Mapping fuels and fires in Southern California chaparral using hyperspectral remote sensing. *Tenth Biennial USDA Forest Service Remote Sensing Applications Conference*.
- Dennison, P.E., and D.A. Roberts, 2004. Examining seasonal changes in canopy moisture using AVIRIS time series data. *Proc. 13th AVIRIS Earth Science Workshop*.
- 2003 Dennison, P.E. and D.A. Roberts, 2003. Endmember selection for multiple endmember spectral mixture analysis. *Proc. 12th JPL Airborne Earth Science Workshop*, 49-54.
- Jones, C., P.E. Dennison, F.M. Fujioka, D.R. Weise, J.W. Benoit, 2003. Analysis of space/time characteristics of errors in an integrated weather/fire spread simulation. *5th Symposium on Fire and Forest Meteorology*.

- Roberts, D.A. and P.E. Dennison, 2003. Hyperspectral technologies for wildfire fuel mapping. *Proc. 4th International Workshop on Remote Sensing and GIS Applications to Forest Fire Management*.
- 2002 Ustin, S.L., D.A. Roberts, M. Gardner, and P.E. Dennison, 2002. Evaluation of the potential of Hyperion data to estimate wildfire hazard in the Santa Ynez front range, Santa Barbara, California. *International Geoscience and Remote Sensing Symposium*.
- 2001 Dennison, P.E., M.E. Gardner, D.A. Roberts, and R.O. Green, 2001. Calibration and vegetation field spectra collection for the 2000 AVIRIS Hawaii deployment. *Proc. 10th JPL Airborne Earth Science Workshop*.
- 2000 Dennison, P.E., D.A. Roberts, and J.C. Regelbrugge, 2000. Characterizing chaparral fuels using combined hyperspectral and synthetic aperture radar. *Proc. 9th JPL Airborne Earth Science Workshop*.
- Bossert, J.E., R.R. Linn, J.M. Reisner, J.L. Winterkamp, P.E. Dennison, and D.A. Roberts, 2000. Coupled atmosphere-fire behavior model sensitivity to spatial fuels characterization. *Proc. 3rd Symposium on Fire and Forest Meteorology*.
- 1999 Dennison, P.E., D.A. Roberts, E. Reith, J.C. Regelbrugge, and S.L. Ustin, 1999. Integrating polarimetric synthetic aperture radar and imaging spectrometry for wildland fuel mapping. *Proc. 1999 Joint Fire Science Conference and Workshop*.
- Roberts, D.A., P.E. Dennison, M.E. Morais, M.E. Gardner, J. Regelbrugge, and S.L. Ustin, 1999. Mapping wildfire fuels using imaging spectrometry along the wildland urban interface. *Proc. 1999 Joint Fire Science Conference and Workshop*.
- Roberts, D.A., P.E. Dennison, S.L. Ustin, E. Reith, and M.E. Morais, 1999. Development of a regionally specific library for the Santa Monica Mountains using high resolution AVIRIS data. *Proc. 8th Airborne Earth Science Workshop*.
- 1997 Dennison, P.E., 1997. Seasonal fluctuations in Central Greenland Ice Sheet radar altimeter return characteristics. *Proc. 11th National Conference on Undergraduate Research, 1853-1856*.

G. Invited Presentations

- 2022 Multispectral band recommendations for global measurement of non-photosynthetic vegetation cover. Sentinel 2 Next Generation Ad Hoc Expert Group meeting, European Space Agency. Jul 6, 2022.
- 2021 Advancing firefighter safety using remote sensing and GIS. RS Fire 2021, 2nd Annual Symposium on Remote Sensing & Wildland Fire. Nov 8, 2021.
- 2020 Airborne remote sensing of point source greenhouse gas emissions. ENVI Analytics Symposium, Aug 26, 2020.

- Wildfire temperature retrieval from airborne imaging spectrometer data. Jet Propulsion Lab Carbon Club, Jan 9, 2020, Pasadena.
- 2018 Improving wildland firefighter safety using remote sensing. Boise State University, Jan 29, 2018, Boise ID.
Improving wildland firefighter safety using remote sensing. South Dakota State University, Feb 1, 2018, Brookings SD.
- 2015 Facing a fiery future: Wildfire in the West and applications of remote sensing. NAKAMA talk series, University of Utah, Apr 3, 2015, Salt Lake City.
- 2014 Facing a fiery future: Wildfire applications of remote sensing. Global Change and Sustainability Center seminar, University of Utah, Oct 21, 2014, Salt Lake City.
Applying spatial modeling to wildfire evacuation and safety. Colloquium, Department of Geography, University of New Mexico, Apr 4, 2014, Albuquerque.
- 2013 Satellite measurement of fire danger, Natural History Museum of Utah Scientist in the Spotlight, Oct 4, 2013, Salt Lake City.
- 2012 Wildfire in Utah and fire-climate connections, iMatter Utah, Sep 20, 2012, Salt Lake City.
Remote measurement of atmospheric carbon dioxide absorption. Colloquium, Department of Geography, University of California Berkeley, Feb 27, 2012, Berkeley.
- 2010 When beetles attack: Remote sensing of insect impacts of vegetation. Environmental Studies program, University of Utah, Oct 19, 2010, Salt Lake City.
When beetles attack: Remote sensing of insect impacts on vegetation. Colloquium, University of Denver, Feb 4, 2010, Denver.
- 2009 Live fuel moisture and wildfire danger: Results from California and lessons for Utah. Colloquium, Brigham Young University, Jan 22, 2009, Provo, Utah.
- 2008 Monitoring tamarisk defoliation and scaling evapotranspiration using remote sensing data (poster). American Geophysical Union Fall Meeting, Dec 15-19, 2008, San Francisco.
Detecting fire and methane using hyperspectral shortwave infrared remote sensing data. GEOINT 2008, Oct 29, 2008, Nashville.
Assessing wildfire hazard in southern California using GIS and remote sensing. ESRI Users Conference, Aug 6, 2008, San Diego.
Remote sensing of fuel type, load, and condition: recent research and directions for the future. NASA Fire Science Workshop, Feb 20, 2008, College Park, MD.
Monitoring and predicting live fuel moisture in southern California chaparral. Colloquium, Department of Biology, University of Utah, Feb 12, 2008, Salt Lake City.

- 2007 Multiple endmember spectral mixture analysis: new algorithms and applications. Colloquium, Center for Imaging Science, Rochester Institute of Technology, May 2, 2007, Rochester, NY.
- 2005 Hyperspectral and temporal remote sensing of wildland fuels and fires. Colloquium, Department of Meteorology, University of Utah, Nov 9, 2005, Salt Lake City.
- 2003 Southern California wildland fuels and fires: A remote sensing and modeling approach. Colloquium, Department of Geography San Diego State University, Dec 5, 2003, San Diego, CA.
- 2002 Mapping wildland fuels using hyperspectral and synthetic aperture radar remote sensing. Colloquium, Environmental Science Program, Whittier College, Apr 24, 2002, Whittier, CA.

H. Invited Workshops

- 2022 Nevada County Evacuation Workshop, Aug 13-15, 2022, Nevada County, California.
- 2014 COMPASS Fire Science Advanced Communication Workshop, Apr 24-25, 2014, Seattle.
- 2008 Pyrogeography and Climate Change, Kavli Institute for Theoretical Physics and the National Center for Ecological Analysis and Synthesis. May 27-30, 2008, Santa Barbara, CA.

I. Recent Conference and Workshop Presentations

- 2021 Dennison, P.E. Measuring greenhouse gas source emissions using hyperspectral remote sensing. *American Association of Geographers Annual Meeting*, 8 Apr 2021, remote presentation.
- 2020 Dennison, P.E., M.D. Foote, P. Sullivan, K. O'Neill, S.C. Joshi, A.K. Thorpe, D. Cusworth, D.R. Thompson, and R. Duren. A benchmark dataset for retrieval of point source CH₄ and CO₂ plumes from imaging spectrometer data. *American Geophysical Union Fall Meeting*, Dec 2020, eposter.
Dennison, P.E. Comparing methods for modeling fractional cover using simulated SBG VSWIR spectra. SBG Algorithms Working Group. Nov 9 2020, remote presentation.
Dennison, P.E. and L. Garcia. AVIRIS-C and eMAS fire detection, and questions about eMAS FRP. FIREX-AQ ER-2 Post-Campaign Meeting, Apr 28 2020, remote presentation.
- 2019 Dennison, P.E., M.D. Foote, S.C. Joshi, A.K. Thorpe, and D.R. Thompson. Improved trace gas plume detection using Indian and US AVIRIS-NG data. Methane Working Group Meeting, Feb 2019, Pasadena.
- 2018 Dennison, P.E., M.D. Foote, S.C. Joshi, A.K. Thorpe, and D.R. Thompson. Mapping methane plumes in AVIRIS-NG India campaign data and potential for global point source emissions monitoring using imaging spectroscopy. *American Geophysical Union Fall Meeting*, Dec 2018, Washington DC.

Dennison, P.E., M.D. Foote, S.C. Joshi, A.K. Thorpe, D.R. Thompson, M. Pandya, and A. Chhabra. Methane and carbon dioxide plume mapping using AVIRIS-NG data. *NASA/ISRO AVIRIS-NG Science Meeting*, Aug 24 2018, Ahmedabad.

Dennison, P.E., S. Veraverbeke, D. Roberts, and N. Stavros. Wildfire applications of imaging spectroscopy. *2018 HypsIRI and Surface Biology and Geology Community Science and Applications Workshop*. Aug 17 2018, Washington DC.

Dennison, P.E., M.D. Foote, S.C. Joshi, A.K. Thorpe, and D.R. Thompson. Mapping methane plumes in AVIRIS-NG India campaign data (poster). *2018 HypsIRI and Surface Biology and Geology Community Science and Applications Workshop*. Aug 15 2018, Washington DC.

2017 Dennison, P.E., S. Joshi, A. Thorpe, D. Thompson, and S. Awate. Improved trace gas plume detection using Indian and US AVIRIS-NG data. *2017 HypsIRI Science Workshop*, Oct 19 2017, Pasadena.

Dennison, P.E., R. Kokaly, D. Thompson, C. Daughtry, S. Meerdink, M. Quemada, and D. Roberts. Comparing methods for modeling fractional cover using simulated HypsIRI spectra. *2017 HypsIRI Science Workshop*, Oct 17 2017, Pasadena.

Dennison, P.E., S. Joshi, A. Thorpe, D. Thompson, and S. Awate. Improved trace gas plume detection using Indian and US AVIRIS-NG data. *NASA/ISRO AVIRIS-NG Science Meeting*, Jul 13 2017, Ahmedabad.

J. Interdisciplinary Research Affiliations

2009-present	Global Change and Sustainability Center, University of Utah
2004-2018	Center for Natural and Technological Hazards (CNTH), University of Utah
2007-2008	Great Basin Domain (Domain 15) Proposal Team, National Ecological Observatory Network, National Science Foundation
2006-2008	Ecosystems, Humans, and Built Environment initiative, University of Utah
2005-2008	Center for Water, Ecosystem, and Climate Science (CWECS), University of Utah

III. TEACHING

A. Courses

<u>Course #</u>	<u>Title</u>	<u>Semesters</u>
GEOG 1100	Exploring the World through Google Earth	Spring 2011
GEOG 1100	Measuring Global Change From Space	Spring 2005, Fall 2005, Fall 2006, Spring 2008
GEOG 2050	Environment and Society: Perspectives on Challenges, Solutions, and Careers	Spring 2022

GEOG 3110	The Earth From Space: Remote Sensing of the Environment	Fall 2004-2010, 2012, 2016
GEOG 5110	Environmental Analysis through Remote Sensing	Spring 2013
GEOG 5120	Advanced Optical Remote Sensing	Fall 2019, Spring 2021, Fall 2022
GEOG 5120	Environmental Optics	Spring 2006-2011, 2016, Fall 2012-2014, 2017
GEOG 6445	Remote Sensing of Vegetation	Spring 2015, 2017
GEOG 6960	Seminar on Hyperspectral Remote Sensing	Spring 2005, Fall 2021
GEOG 6960	Seminar on Fire Modeling	Spring 2006
GEOG 6960	Seminar on Optical Remote Sensing of Vegetation	Spring 2007
GEOG 6960	Interdisciplinary Seminar on Climate Change	Fall 2007
GEOG 6960	Seminar on Hyperspectral Remote Sensing of Plant Species and Functional Type	Fall 2008
GEOG 6960	Seminar on Remote Sensing of Wildfire	Fall 2009
GEOG 6960	Applied Remote Sensing Seminar	Fall 2010
GEOG 6961	Seminar in Geographic Thought and Inquiry	Fall 2013-2017

B. Short Courses

2006 VIPER Tools Training Course, December 11-12, MITRE Corporation, McLean, VA.

IV. ADVISING

A. Chaired Graduate Committees

1. Geography Ph.D.

a. Completed

- 2019 Brent Lloyd, "Evaluating health and farming methods in Burkina Faso"
- 2018 Mickey Campbell, "Remote sensing and geospatial modeling of wildland firefighter safety"
- 2015 Ran Meng, "Study of two vegetation-related disturbances (beetle herbivory and wildfire) in the western United States using optical remote sensing"
- 2014 Yi Qi, "New physical foundations for remote sensing estimation of live fuel moisture content and fire danger"

- 2014 Chris Balzotti, “Exploring the use of fine resolution nested ecological niche models to identify greater sage-grouse (*Centrocercus urophasianus*) habitat and connectivity potential across a diverse landscape”
- 2012 Ryo Michishita, “Dynamic modeling of wetland vegetation using multi-sensor multi-temporal remotely sensed data in the Poyang Lake Area, China”

b. In progress

2020-present Patrick Sullivan

2. Geography Master’s

a. Completed

- 2022 Katherine Mistick, “Mapping fire and firefighter visibility for improving situational awareness”
- 2022 Bailey Costello, “Modeling socioeconomics in urban areas using hyperspectral remote sensing”
- 2022 Kelly O’Neill, “Convolutional neural networks for detection of point source methane plumes in airborne imaging spectrometer data”
- 2021 Luis Garcia, “Examining fire radiative power (FRP) retrievals using shortwave and mid-infrared radiance from FIREX-AQ”
- 2021 Troy Saltiel, “Deep learning semantic segmentation of wetland vegetation with UAS-acquired imagery at various spatial resolutions”
- 2020 Patrick Sullivan, “Modeling wildland firefighter travel rates across varying slopes”
- 2019 Sandra Miller, “Spatial modeling of wildland fire ignition potential in Utah”
- 2017 Erika Wenrich, “Quantifying drought-induced changes in green vegetation fraction and classification accuracy using hyperspectral data for the central Sierra Nevada, California”
- 2017 Josh Reynolds, “Comparing urban vegetation cover with summer land surface temperature in the Salt Lake Valley”
- 2015 Austin Coates, “Hyperspectral remote sensing for monitoring species-specific drought impacts in southern California”
- 2014 Kenneth Dudley, “Mapping species across multiple dates of hyperspectral imagery using iterative endmember selection and multiple endmember spectral mixture analysis”
- 2013 James Arnold, “Modeling climate-fire connections within the Great Basin and Upper Colorado River Basin, Western United States”, co-advised with Dr. Simon Brewer
- 2012 Greg Fryer, “Wildland firefighter entrapment avoidance: developing evacuation trigger points utilizing the WUIVAC fire spread model”

- 2012 Ashley Powell, “Understanding the relationships between fire, climate, and population in Central Uganda from 1990-2010”
- 2011 Scott Matheson, “Evaluating the effects of spatial resolution on hyperspectral fire detection and temperature retrieval”
- 2010 Mark Beaty, “An examination of a pixel replacement algorithm for monitoring post-fire chaparral recovery using indices derived from AVIRIS data”
- 2010 Jeremy Larsen, “Analysis of wildfire evacuation trigger buffer modeling from the 2003 Cedar Fire, California”
- 2010 Abigail Schaaf, “Using hyperspectral data to classify vegetation at the plant functional type-level in mountain terrain at three spatial resolutions”
- 2008 Scott Graves, “Examining vegetation phenology of Ugandan dambos using spectral mixture modeling fractions”
- 2008 Matt Hansen, “Decision tree classification of dambo wetlands using remotely sensed multispectral and topographic data”

b. In progress

- 2021-present Jessie Eastburn (co-advised)
- 2021-present Alex Heeren
- 2022-present Allison Smith (co-advised)

B. Undergraduate Research Assistants

- 2022 Samantha Kight, UROP, “Using viewshed and machine learning to model visibility for terrain and vegetation”
- 2010 Austin Coates, UROP, “Observed changes in the EVI and evapotranspiration of tamarisk caused by the introduction of the saltcedar leaf beetle”

V. SERVICE

A. Professional and Community Service

1. Editorial Boards, Advisory Boards, Working Groups, and Science Teams

<i>Remote Sensing of Environment</i> Editorial Board	2011-present
NASA SBG Algorithms Working Group	2018-present
NASA SBG Applications Working Group	2018-present
NASA Carbon Monitoring System Science Team	2019-present
<i>Fire</i> Editorial Board	2020-present
USGS Land Processes Distributed Active Archive Center User Working Group	2017-2020

2. Special Issues

Co-editor, *Remote Sensing of Environment* special issue on Remote Sensing of Greenhouse Gas Emissions, 2021

Co-editor, *Remote Sensing of Environment* special issue on the Hyperspectral Infrared Imager (HyspIRI), 2015

3. Manuscript Reviews

Biological Invasions

Conservation Physiology

Diversity and Distributions

Earth's Future

Ecohydrology

Ecological Applications

Environmental Monitoring and Assessment

Environmental Research Letters

European Journal of Remote Sensing

Fire

Forest Ecology and Management

Geoderma

Geography Compass

Geophysical Research Letters

Global Change Biology

IEEE Geoscience and Remote Sensing Letters

IEEE Trans. on Geoscience and Remote Sensing

International Journal of Applied Earth Observation and Geoinformation

International Journal of Disaster Risk Reduction

International Journal of Geographical Information Science

International Journal of Remote Sensing

International Journal of Wildland Fire

ISPRS Journal of Photogrammetry and Remote Sensing

Journal of Arid Environments

Journal of the American Society for Horticultural Science

Journal of Geophysical Research - Biogeosciences

Journal of Selected Topics in Applied Earth Observations and Remote Sensing

Journal of Zhejiang University Science

Landscape Ecology

Landscape and Urban Planning

Nature Climate Change

Nature Communications

Pedosphere

Photogrammetric Engineering & Remote Sensing

Planetary and Space Science

PLOS ONE

Proceedings of the National Academy of Sciences

Professional Geographer

Progress in Physical Geography

Rangeland Ecology and Management

Regional Environmental Change

Remote Sensing

Remote Sensing Applications: Society and Environment

Remote Sensing of Environment

Science of the Total Environment

Sensors

Soil Science Society of America Journal

Wetlands Ecology and Management

B. University Service

2015-2018	Sustaining Biodiversity Transformative Excellence Committee
2014-2018	University Research Committee
2013-2015	Global Change and Sustainability Center Executive Committee member
2012-2013	Global Change and Sustainability Center Graduate Student Fellowship Program, proposal review committee
2008	College of Social and Behavioral Science representative, Interdisciplinary Research Grant Review Committee
2006-2008	Ecosystems, Humans, and Built Environment Initiative Steering Committee

C. College Service

2022	College of Social and Behavioral Science Dean Search Committee
2016-2018	College of Social and Behavioral Science Faculty Search Advisory Committee
2010-2011, 2013, 2016- 2018	College of Social and Behavioral Science Graduate Scholarship Committee
2009	College of Social and Behavioral Science Teaching Award Committee
2005-2007	College of Social and Behavioral Science Computing Advisory Committee

D. Department Service

2019-present	Department Chair
2009-2011, 2012-2018	Director of Graduate Studies
2009-present	Director of Utah Remote Sensing Applications (URSA) Lab

- 2010 Search Committee Chair, Physical Geography Position
- 2006-2009 Undergraduate Committee Chair
- 2005-2018 Graduate Committee
- 2005-present Remote Sensing Focus Area Chair

VI. OTHER

A. Legislative

- 2018 Assisted legislative audit of Utah Department of Natural Resources with respect to wildfire issues
- 2013 Advised drafting of legislation to direct Utah Department of Natural Resources Division of Forestry, Fire, and State Lands to include climate change in wildfire pre-suppression planning (House Bill 77)

B. Exhibits

- 2013 Assisted in creation of a wildfire exhibit for Natural History Museum of Utah, including providing ideas and materials for displays and reviewing displays for scientific accuracy

C. Membership in Professional Organizations

- Association of American Geographers
- American Geophysical Union
- International Association of Wildland Fire