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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. Recent Honors 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

II. RESEARCH

A. Refereed Publications 109 total. Student authors underlined; direct advisees are double underlined.

- 2022 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*
- 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., et al., 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>
- Khorshidi, M.S., Dennison, P.E., Nikoo, M.R., Aghakouchak, A., Luce, C.H., Sadegh, M., 2020. Increasing concurrence of wildfire drivers tripled megafire critical danger days in Southern California between 1982 and 2018. *Environmental Research Letters* 15, 104002. <https://doi.org/10.1088/1748-9326/abae9e>
- 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>
- Alizadeh, M.R., Adamowski, J., Nikoo, M.R., AghaKouchak, A., Dennison, P., Sadegh, M., 2020. A century of observations reveals increasing likelihood of continental-scale compound dry-hot extremes. *Science Advances* 6, eaaz4571. <https://doi.org/10.1126/sciadv.aaz4571>
- Magozzi, S., Vander Zanden, H.B., Wunder, M.B., Trueman, C.N., Pinney, K., Peers, D., Dennison, P.E., Horns, J.J., Şekercioğlu, Ç.H., Bowen, G.J., 2020. Combining models of environment, behavior, and physiology to predict tissue hydrogen and oxygen isotope variance among individual terrestrial animals. *Frontiers in Ecology and Evolution* 8, 536109. <https://doi.org/10.3389/fevo.2020.536109>
- 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. <https://doi.org/10.1016/j.apgeog.2019.03.008>
- 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>
- Lloyd, B.J., Dennison, P.E., 2018. Evaluating the response of conventional and water harvesting farms to environmental variables using remote sensing. *Agriculture, Ecosystems and Environment* 262, 11–17. <https://doi.org/10.1016/j.agee.2018.04.009>

- 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>
- Veraverbeke, S., Dennison, P., Gitas, I., Hulley, G., Kalashnikova, O., Katagis, T., Kuai, L., Meng, R., Roberts, D., Stavros, N., 2018. Hyperspectral remote sensing of fire: State-of-the-art and future perspectives. *Remote Sensing of Environment* 216, 105–121. <https://doi.org/10.1016/j.rse.2018.06.020>
- 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>
- Ayasse, A.K., Thorpe, A.K., Roberts, D.A., Funk, C.C., Dennison, P.E., Frankenberg, C., Steffke, A., Aubrey, A.D., 2018. Evaluating the effects of surface properties on methane retrievals using a synthetic airborne visible/infrared imaging spectrometer next generation (AVIRIS-NG) image. *Remote Sensing of Environment* 215, 386–397. <https://doi.org/10.1016/j.rse.2018.06.018>
- 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>
- Cova, T.J., Dennison, P.E., Li, D., Drews, F.A., Siebeneck, L.K., Lindell, M.K., 2017. Warning triggers in environmental hazards: Who should be warned to do what and when? *Risk Analysis* 37, 601–611. <https://doi.org/10.1111/risa.12651>
- 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>
- Hansen, C.H., Burian, S.J., Dennison, P.E., Williams, G.P., 2017. Spatiotemporal variability of lake water quality in the context of remote sensing models. *Remote Sensing* 9, 409. <https://doi.org/10.3390/rs9050409>

- Li, D., Cova, T.J., Dennison, P.E., 2017. Using reverse geocoding to identify prominent wildfire evacuation trigger points. *Applied Geography* 87, 14–27. <https://doi.org/10.1016/j.apgeog.2017.05.008>
- Schoennagel, T., Balch, J.K., Brenkert-Smith, H., Dennison, P.E., Harvey, B.J., Krawchuk, M.A., Mietkiewicz, N., Morgan, P., Moritz, M.A., Rasker, R., Turner, M.G., Whitlock, C., 2017. Adapt to more wildfire in western North American forests as climate changes. *Proceedings of the National Academy of Sciences of the United States of America* 114, 4582–4590. <https://doi.org/10.1073/pnas.1617464114>
- Stoker, P., Rothfeder, R., Dudley, K., Dennison, P., Buchert, M., 2017. Comparing the utility of LiDAR data vs. multi-spectral imagery for parcel scale water demand modeling. *Urban Water Journal* 14, 331–335. <https://doi.org/10.1080/1573062X.2015.1111915>
- 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>
- Thorpe, A.K., Frankenberg, C., Thompson, D.R., Duren, R.M., Aubrey, A.D., Bue, B.D., Green, R.O., Gerilowski, K., Krings, T., Borchardt, J., Kort, E.A., Sweeney, C., Conley, S., Roberts, D.A., Dennison, P.E., 2017. Airborne DOAS retrievals of methane, carbon dioxide, and water vapor concentrations at high spatial resolution: Application to AVIRIS-NG. *Atmospheric Measurement Techniques* 10, 3833–3850. <https://doi.org/10.5194/amt-10-3833-2017>
- 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>
- Meerdink, S.K., Roberts, D.A., King, J.Y., Roth, K.L., Dennison, P.E., Amaral, C.H., Hook, S.J., 2016. Linking seasonal foliar traits to VSWIR-TIR spectroscopy across California ecosystems. *Remote Sensing of Environment* 186, 322–338. <https://doi.org/10.1016/j.rse.2016.08.003>
- 2015 Coates, A.R., Dennison, P.E., Roberts, D.A., Roth, K.L., 2015. Monitoring the impacts of severe drought on southern California Chaparral species using hyperspectral and thermal infrared imagery. *Remote Sensing* 7, 14276–14291. <https://doi.org/10.3390/rs71114276>
- Dudley, K.L., Dennison, P.E., Roth, K.L., Roberts, D.A., Coates, A.R., 2015. A multi-temporal spectral library approach for mapping vegetation species across spatial and temporal phenological gradients. *Remote Sensing of Environment* 167, 121–134. <https://doi.org/10.1016/j.rse.2015.05.004>

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- Roberts, D.A., Dennison, P.E., Roth, K.L., Dudley, K., Hulley, G., 2015. Relationships between dominant plant species, fractional cover and land surface temperature in a Mediterranean ecosystem. *Remote Sensing of Environment* 167, 152–167. <https://doi.org/10.1016/j.rse.2015.01.026>
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- Roth, K.L., Roberts, D.A., Dennison, P.E., Alonzo, M., Peterson, S.H., Beland, M., 2015a. Differentiating plant species within and across diverse ecosystems with imaging spectroscopy. *Remote Sensing of Environment* 167, 135–151. <https://doi.org/10.1016/j.rse.2015.05.007>
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- 2006 Dennison, P.E., 2006. Fire detection in imaging spectrometer data using atmospheric carbon dioxide absorption. *International Journal of Remote Sensing* 27, 3049–3055. <https://doi.org/10.1080/01431160600660871>
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- 2002 Riaño, D., Chuvieco, E., Ustin, S., Zomer, R., Dennison, P., Roberts, D., Salas, J., 2002. Assessment of vegetation regeneration after fire through multitemporal analysis of AVIRIS images in the Santa Monica Mountains. *Remote Sensing of Environment* 79, 60–71. [https://doi.org/10.1016/S0034-4257\(01\)00239-5](https://doi.org/10.1016/S0034-4257(01)00239-5)

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

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|-----------|---|
| 2021-2024 | Improving wildland firefighter safety through geospatial modeling of lookouts, communications, escape routes, and safety zones, <i>NSF</i> , 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, <i>US Forest Service</i> , Principal Investigator, \$500,151 |
| 2019-2024 | Development of algorithm for firefighter travel rates as function of environment and crew factors, <i>US Forest Service</i> , Principal Investigator, \$298,016 |
| 2019-2022 | Multi-tiered carbon monitoring system, <i>NASA</i> , 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

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. Reports and White Papers

- 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. Invited Presentations

- 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.

F. 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 2020, 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.
- 2016 Dennison, P.E., R. Kokaly, D. Thompson, C. Daughtry, D. Roberts, J. Chambers, P. Nagler, G. Okin, and P. Scarth. Estimating achievable accuracy for global imaging spectroscopy measurement of non-photosynthetic vegetation cover. *American Geophysical Union Fall Meeting*, Dec 16 2016, San Francisco.
- Dennison, P.E., R. Kokaly, D. Thompson, C. Daughtry, D. Roberts, J. Chambers, P. Nagler, G. Okin, and P. Scarth. Global measurement of non-photosynthetic vegetation: Need and an effort to assess potential accuracy. *2016 HypsIRI Science Workshop*, Oct 18 2016, Pasadena.

G. 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

H. Popular Media

- 2021 Utah fire season retrospective: KUER
- 2021 late June Utah fire season: *Salt Lake Tribune*
- 2021 early June Utah fire season: *Salt Lake Tribune*
- 2020 California fires: Associated Press
- 2019 California fires: Associated Press, FactCheck.org
 Invasive grasses and wildfire: Associated Press
 Powerline shutdowns and wildfires in California: Associated Press
 Travel rate modeling: *High Country News*, *Runner's World*, Utah Public Radio, *Wildfire Today*
- 2018 California fires: 2 Associated Press articles, FactCheck.org
 Firefighter escape routes: *The Journal* (Four Corners region newspaper)
 Pole Creek Fire: KUTV
 Wildfire and climate: KUTV, KTVX, KJZZ
- 2017 Firefighter escape routes: *Wildfire Today*, *Smithsonian Magazine*, SLC ABC affiliate website
 Firefighter safety: KSL
 Wildfire and climate: Inside Climate News, others
 Wildfire causes: Associated Press (picked up by > 175 nationwide news outlets)
- 2016 Wildfire and climate: *PBS NewsHour*
 Wildfire policy: *New York Times* Dot Earth, *Greenwire*
- 2014 Map of Western US wildfires: "When the Snows Fail", *National Geographic*, October issue
 Western US wildfires: *To The Point* Public Radio International syndicated radio show

Western US fires and climate

- Print and Online: Associated Press (picked up by > 600 news outlets)
- Websites: Vox, The Weather Channel
- Radio interviews: BBC (UK), Nevada Public Radio (NPR)

Western US wildfire trends

- Print and Online: *USA Today*, *Time*, *Salt Lake Tribune*, *Washington Post*, *Boise Weekly*, *Cache Valley Daily*, *Daily Californian*
- Websites: LiveScience, National Geographic, Discover Magazine, phys.org, Vox, Motherboard, Pacific Standard, Climate Central, > 50 news and insurance industry websites
- Television interviews: KSL, KSTU, KTVX, KUTV (Salt Lake City)
- Radio interviews: KSL (Salt Lake City), KQED (NPR Bay Area)

Firefighter entrapment: *The Conversation*, Australian news site

2013 Fire and climate change: *NBCNews.com*, *LiveScience*

Wildfire trends: NASA Goddard Space Flight Center homepage news story

Fire and climate change: *Salt Lake Tribune*, *Park City Record*

2012 Fire and climate change: 40 minute interview for “CityViews” radio show, KCPW

2011 Remote sensing of mouse populations and hantavirus prevalence

- Print: United Press, *Salt Lake Tribune*, *Deseret News*, *Ogden Standard-Examiner*, U.S. News
- Online: *USA Today*, *Audubon Magazine*, *NSF Science360*, *Milwaukee Journal Sentinel*, KSL.com, Fox13now.com
- Television interviews: KSL and KSTU (Salt Lake City)

Beetle kill mapping work featured in *The Space Report 2011*, published by the Space Foundation

2010 Beetle kill mapping work described in *UCAR Magazine*

Beetle kill mapping work featured by GeoEye and EMap newsletters

2009 Remote sensing of saltcedar leaf beetle defoliation of tamarisk

- Newspaper: Associated Press (picked up by 25 newspapers and news websites, including *Salt Lake Tribune*, *Idaho Statesman*, *Seattle Times* and *Post-Intelligencer*), United Press (picked up by 5 newspapers and news websites), *LA Times Green Blog*, *Scientific American Online*, *University of Utah Daily Chronicle*, *Frontiers in Ecology and the Environment*, *Salt Lake Tribune*

2007 Hyperspectral remote sensing of fire

- Newspaper: *Ogden Standard Examiner*, *University of Utah Daily Chronicle*
- Television interview: KSL (Salt Lake City)

- Radio interview: KCPW (Salt Lake City)

Predicting live fuel moisture decline in the Santa Monica Mountains

- Newspaper: Associated Press (picked up by 10 newspapers), *Deseret Morning News*, *Daily Chronicle*, *LA Canyon News*, *Malibu Times*
- Radio interviews: 5 stations (Los Angeles and Salt Lake City)

L. Synergistic Research Contributions

- 2021-2022 Assisted in selection of bands for next generation Landsat missions
- 2019-2020 Contributed fire mapping to NASA FIREX-AQ campaign
- 2019-2020 Research used to make the case for NASA's proposed SBG mission
- 2017-2020 Led multi-institution group working on improving trace gas retrievals for AVIRIS-NG campaigns
- 2016 Contributor to working group on fire science issues for policymakers
- 2015-2017 Led white papers on remote sensing of fire impacts on ecosystems and on remote sensing of non-photosynthetic vegetation for the National Academies decadal survey of NASA Earth system science and applications
- 2014-2015 Supervised the development of VIPER Tools 2, an open source, free add-on to ENVI that provides tools for endmember selection and multiple endmember spectral mixture analysis
- 2013-2016 Member of executive team and contributor to EcoSIS, a vegetation spectral database
- 2013 Led simulation of HypsIRI-like products for the 2013-2015 HypsIRI Preparatory Campaign
- 2011 Contributed to HypsIRI working group on high temperature saturation
- 2010 Contributed emitted radiance mapping algorithms to Deepwater Horizon oil spill response efforts, used for mapping *in situ* oil burning
- 2010 Discovered "stray light" artifact in MASTER visible/NIR/SWIR/TIR spectrometer, resulting in sensor fix
- 2008 Summarized "state of science" and co-led break out session on remote sensing of fuels for NASA strategic planning workshop on remote sensing and wildfire
- 2004-2006 Assisted in development of VIPER Tools

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
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

- 2021 Luis Garcia, “Examining fire radiative power (FRP) retrievals using shortwave and mid-infrared radiance from FIREX-AQ”
- 2021 Troy Saliel, “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

- 2020-present Katherine Mistick
- 2020-present Bailey Costello
- 2020-present Kelly O’Neill
- 2021-present Alex Heeren

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 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

- 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

E. Synergistic Service Contributions

- 2020 Led Utah Geography through concurrent COVID-19 and cyberattack crises
- 2020 Led department diversity and inclusion initiative
- 2012-2018 Launched and advised professional Masters of Science in Geographic Information Science program
- 2009-2014 Led changes to graduate program that reduced MS time to completion by one year

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; Remote Sensing, Hazards, and GIS sections
- American Geophysical Union
- International Association of Wildland Fire