

Philip E. Dennison

2 February 2017

Professor

Department of Geography

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<http://ursa.utah.edu>**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 physiology and phenology, spectroscopy, wildfire and fire danger modeling, fire and climate, vegetation and the carbon cycle, natural hazards, physical geography

C. Professional Experience

- 2014-present Professor, Department of Geography, University of Utah
2008-present 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 Professional Honors, Fellowships, and Awards

- 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 Research Award

II. RESEARCH**A. Refereed Publications** Advised student authors are underlined.

- 2017 Campbell, M.J., P.E. Dennison, and B.W. Butler. Safe separation distance score: A new metric for evaluating wildland firefighter safety zones using lidar. *International Journal of Geographic Information Science*, in press.

- 2017 Cova, T.J., P.E. Dennison, F.A. Drews, D. Li, L.K. Siebeneck, and M.K. Lindell. Warning triggers in environmental hazards: Who should be warned to do what and when? *Risk Analysis*, in press.
- 2017 Stoker, P., R. Rothfeder, K. Dudley, P. Dennison, and M. Buchert. Comparing the utility of LiDAR data vs. multi-spectral imagery for parcel scale water demand modeling. *Urban Water Journal*, 14, 331-335.
- 2017 Meng, R., J. Wu, K.L. Schwager, K. Brewster, F.R. Zhao, P.E. Dennison, B.D. Cook, T.M. Green, and S.P. Serbin. Using high spatial resolution satellite imagery to map forest burn severity across spatial scales in a Pine Barrens ecosystem. *Remote Sensing of Environment*, in press.
- 2016 Qi, Y., W. Jolly, P. Dennison, and R. Kropp. Seasonal relationships between foliar moisture content, heat content, and biochemistry of lodgepole pine and sagebrush foliage. *International Journal of Wildland Fire*, 25, 574-578.
- 2016 Meerdink, S.K., D.A. Roberts, J.Y. King, K.L. Roth, P.E. Dennison, C.H. Aramal, and S.J. Hook. Linking seasonal foliar traits to VSWIR-TIR spectroscopy across California ecosystems. *Remote Sensing of Environment*, 186, 322-338.
- 2015 Coates, A.R., P.E. Dennison, D.A. Roberts, and K.L. Roth. Monitoring the impacts of severe drought on Southern California chaparral species using hyperspectral and thermal infrared imagery. *Remote Sensing*, 7, 14276-14291.
- 2015 Dudley, K.L., P.E. Dennison, K.L. Roth, D.A. Roberts, and A.R. Coates. A multi-temporal spectral library approach for mapping vegetation species across spatial and temporal phenological gradients. *Remote Sensing of Environment*, 167, 121-134.
- 2015 Meng, R. and P.E. Dennison. Spectroscopic analysis of green, desiccated and dead tamarisk canopies. *Photogrammetric Engineering & Remote Sensing*, 81, 199-207.
- 2015 Meng, R., P.E. Dennison, C. Huang, M. Moritz, and C. D'Antonio. Effects of fire severity and post-fire climate on short-term vegetation recovery of mixed-conifer and red fir forests in the Sierra Nevada Mountains of California. *Remote Sensing of Environment*, 171, 311-325.
- 2015 Realmuto, V.J., P.E. Dennison, M. Foote, M.S. Ramsey, M.J. Wooster, and R. Wright. Specifying the saturation temperature for the HypsIRI 4- μ m channel. *Remote Sensing of Environment*, 167, 40-52.
- 2015 Roberts, D.A., P.E. Dennison, K.L. Roth, K. Dudley, and G. Hulley. Relationships between dominant plant species, fractional cover and land surface temperature in a Mediterranean ecosystem. *Remote Sensing of Environment*, 167, 152-167.
- 2015 Hochberg, E.J., D.A. Roberts, P.E. Dennison, and G.C. Hulley. Special issue on the Hyperspectral Infrared Imager (HypsIRI): Emerging science in terrestrial and aquatic ecology, radiation balance and hazards. *Remote Sensing of Environment*, 167, 1-5.

- 2015 Li, D., T.J. Cova, and P.E. Dennison. A household-level approach to staging wildfire evacuation warnings using trigger modeling. *Computers, Environment and Urban Systems*, 54, 56-67.
- 2015 Roth, K.L., D.A. Roberts, P.E. Dennison, M. Alonzo, S.H. Peterson, and M. Beland. Differentiating plant species within and across diverse ecosystems with imaging spectroscopy. *Remote Sensing of Environment*, 167, 135-151.
- 2015 Roth, K.L., D.A. Roberts, P.E. Dennison, S.H. Peterson, and M. Alonzo. The impact of spatial resolution on the classification of plant species and functional types within imaging spectrometer data. *Remote Sensing of Environment*, 171, 45-57.
- 2015 Thompson, D.R., B.C. Gao, R.O. Green, D.A. Roberts, P.E. Dennison, and S. Lundeen. Atmospheric correction for global mapping spectroscopy: ATREM advances for the HypsIRI preparatory campaign. *Remote Sensing of Environment*, 167, 64-77.
- 2014 Dennison, P.E., S.C. Brewer, J.D. Arnold, and M.A. Moritz. Large wildfire trends in the western United States, 1984-2011. *Geophysical Research Letters*, 41, 2928–2933.
- 2014 Dennison, P.E., G.K. Fryer, and T.J. Cova. Identification of firefighter safety zones using lidar. *Environmental Modelling & Software*, 59, 91-97.
- 2014 Meng, R., P.E. Dennison, C. D’Antonio, and M.A. Moritz. Remote sensing analysis of vegetation recovery following short-interval fires in southern California shrublands. *PLoS ONE*, 9(10), e110637.
- 2014 Qi, Y., P.E. Dennison, W.M. Jolly, R.C. Kropp, and S.C. Brewer. Spectroscopic analysis of seasonal changes in live fuel moisture content and leaf dry mass. *Remote Sensing of Environment*, 150, 198-206.
- 2014 Arnold, J.D., S.C. Brewer, and P.E. Dennison. Modeling climate-fire connections within the Great Basin and Upper Colorado River Basin, Western United States. *Fire Ecology*, 10, 64-75.
- 2014 Lugumira, J.S., D.J. Brown, P.E. Dennison, M.K. Hansen, and L.A. Vierling. Delineating dambo catenary soil-landscape units using aerial gamma-ray and terrain data: a comparison of classification approaches. *International Journal of Remote Sensing*, 35, 8272-8294.
- 2014 Casas, A., D. Riaño, S.L. Ustin, P. Dennison, and J. Salas. Estimation of water-related biochemical and biophysical vegetation properties using multitemporal airborne hyperspectral data and its comparison to MODIS spectral response. *Remote Sensing of Environment*, 148, 28-41.
- 2013 Dennison, P.E., A.K. Thorpe, E.R. Pardyjak, D.A. Roberts, Y. Qi, R.O. Green, E.S. Bradley, and C.C. Funk. High spatial resolution mapping of elevated atmospheric carbon dioxide using airborne imaging spectroscopy: Radiative transfer modeling and power plant plume detection. *Remote Sensing of Environment*, 139, 116-129.
- 2013 Fryer, G.K., P.E. Dennison, and T.J. Cova. Wildland firefighter entrapment avoidance: Modeling evacuation triggers. *International Journal of Wildland Fire*, 22, 883-893.

- 2013 Yebra, M., P.E. Dennison, E. Chuvieco, D. Riano, P. Zylstra, E.R. Hunt, F.M. Danson, Y. Qi, and S. Jurdao. A global review of remote sensing of live fuel moisture content for fire danger assessment: moving towards operational products. *Remote Sensing of Environment*, 136, 455-468.
- 2013 Carter, V.A., A. Brunelle, T.A. Minckley, P.E. Dennison and M.J. Power. Regionalization of fire regimes in the Central Rocky Mountains, USA. *Quaternary Research*, 80, 406-416.
- 2013 Thorpe, A.K., D.A. Roberts, E.S. Bradley, C.C. Funk, P.E. Dennison, and I. Leifer. High resolution mapping of methane emissions from marine and terrestrial sources using a Cluster-Tuned Matched Filter technique and imaging spectrometry. *Remote Sensing of Environment*, 134, 305-318.
- 2012 Matheson, D.S. and P.E. Dennison. Evaluating the effects of spatial resolution on hyperspectral fire detection and temperature retrieval. *Remote Sensing of Environment*, 124, 780-792.
- 2012 Meng, R., P.E. Dennison, L.R. Jamison, C. Van Riper, P. Nagler, K.R. Hultine, N. Ament, D.W. Bean, and T. Dudley. Detection of tamarisk defoliation by the northern tamarisk beetle based on multitemporal Landsat 5 Thematic Mapper imagery. *GIScience and Remote Sensing*, 49, 510-537.
- 2012 Qi, Y., P.E. Dennison, J. Spencer, and D. Riaño. Monitoring live fuel moisture using soil moisture and remote sensing proxies. *Fire Ecology* 8(3), 71-87.
- 2012 Roth, K.L., P.E. Dennison, and D.A. Roberts. Comparing endmember selection techniques for accurate mapping of plant species and land cover using imaging spectrometer data. *Remote Sensing of Environment*, 127, 139-152.
- 2012 Zhang, Y., G.F. Hepner, and P.E. Dennison. Delineation of phenoregions in geographically diverse regions using k-means++ clustering: A case study in the Upper Colorado River Basin. *GIScience and Remote Sensing*, 49, 163-181.
- 2012 Leifer, I., B. Lehr, D. Simecek-Beatty, E. Bradley, R. Clark, P. Dennison, Y. Hu, S. Matheson, C. Jones, B. Holt, M. Reif, D. Roberts, J. Svejksky, G. Swayze and J. Wozencraft. State of the art satellite and airborne marine oil spill remote sensing: Application to the BP Deepwater Horizon oil spill. *Remote Sensing of Environment*, 124, 185-209.
- 2012 Nagler, P.L., T. Brown, K.R. Hultine, C. van Riper, D.W. Bean, P.E. Dennison, R.S. Murray, and E.P. Glenn. Regional-scale impacts of *Tamarix* leaf beetles (*Diorhabda carinulata*) on water availability of western U.S. rivers as determined by multi-scale remote sensing methods. *Remote Sensing of Environment*, 118, 227-240.
- 2011 Dennison, P.E., and D.S. Matheson. Comparison of fire temperature and fractional area modeled from SWIR, MIR, and TIR multispectral and SWIR hyperspectral airborne data. *Remote Sensing of Environment*, 115, 876-886.
- 2011 Cova, T.J., P.E. Dennison, and F.A. Drews. Modeling evacuate versus shelter-in-place decisions in wildfires. *Sustainability*, 3, 1662-1687.
- 2011 Larsen, J.C., P.E. Dennison, T.J. Cova, and C. Jones. Evaluating dynamic wildfire evacuation trigger buffers using the 2003 Cedar Fire. *Applied Geography*, 31, 12-19.

- 2011 Schaaf, A.N., P.E. Dennison, G.K. Fryer, K.L. Roth, and D.A. Roberts. Mapping plant functional types at three spatial resolutions using multiple endmember spectral mixture analysis. *GIScience and Remote Sensing*, 48, 324-344.
- 2011 Bradley, E.S., D.A. Roberts, P.E. Dennison, R.O. Green, M. Eastwood, S.R. Lundeen, I.B. McCubbin, and I. Leifer. Google Earth and Google Fusion Tables in support of time-critical collaboration: Mapping the Deepwater Horizon oil spill with the AVIRIS airborne spectrometer. *Earth Science Informatics*, 4, 169-179.
- 2011 Cao, L., T.J. Cova, P.E. Dennison, and D.M. Dearing. Using MODIS satellite imagery to predict hantavirus risk. *Global Ecology and Biogeography*, 20, 620-629.
- 2011 Bradley, E.S., I. Leifer, D.A. Roberts, P.E. Dennison, and L. Washburn. Detection of Marine Methane Emissions with AVIRIS Band Ratios. *Journal of Geophysical Research*, 38, L10702.
- 2011 Cavanaugh, K.C., D.A. Siegel, D.C. Reed, and P.E. Dennison. Environmental controls of giant kelp biomass in the Santa Barbara Channel, California. *Marine Ecology Progress Series*, 429, 1-17.
- 2011 Youngentob, K.N., D.A. Roberts, A.A. Held, P.E. Dennison, X. Jia, and D.B. Lindenmayer. Mapping two *Eucalyptus* subgenera using multiple endmember spectral mixture analysis and continuum-removed imaging spectrometry data. *Remote Sensing of Environment*, 115, 1115-1128.
- 2011 Peterson, S.H., M.A. Moritz, M.E. Morais, P.E. Dennison, and J.M. Carlson. Modeling long-term fire regimes of southern California shrublands. *International Journal of Wildland Fire*, 20, 1-16.
- 2010 Dennison, P.E., A.R. Brunelle, and V. A. Carter. Assessing canopy mortality during a mountain pine beetle outbreak using GeoEye-1 high spatial resolution satellite data. *Remote Sensing of Environment*, 114, 2431-2435.
- 2010 Anguelova, Z., D.A. Stow, J. Kaiser, P.E. Dennison, and T. Cova. Integrating fire behavior and pedestrian mobility models to assess fire danger to pedestrians within the US-Mexico border zone. *The Professional Geographer*, 62(2), 1-16.
- 2010 Hultine, K.R., J. Belnap, J.R. Ehleringer, C. van Riper, P.E. Dennison, M.E. Lee, P.L. Nagler, K.A. Snyder, S.M. Uselman, and J.B. West. Tamarisk biocontrol in the western United States: ecological and societal implications. *Frontiers in Ecology and the Environment*, 8, 467-474.
- 2010 Roberts, D.A., E.S. Bradley, R. Cheung, I. Leifer, P.E. Dennison, and J. Margolis. Mapping methane emissions from a marine geological seep source using imaging spectrometry. *Remote Sensing of Environment*, 114, 592-606.
- 2010 Hultine, K.R., P.L. Nagler, K. Morino, S.E. Bush, K.G. Burtch, P.E. Dennison, E.P. Glenn, and J.R. Ehleringer. Sap flux-scaled transpiration by tamarisk (*Tamarix* spp.), before, during and after episodic defoliation by the saltcedar leaf beetle (*Diorhabda carinulata*). *Agricultural and Forest Meteorology*, 150, 1467-1475.

- 2009 Dennison, P.E., and M.A. Moritz. Critical live fuel moisture in chaparral ecosystems: A threshold for fire activity and its relationship to antecedent precipitation. *International Journal of Wildland Fire*, 18, 1021-1027.
- 2009 Dennison, P.E. and D.A. Roberts. Daytime fire detection using airborne hyperspectral data. *Remote Sensing of Environment*, 113, 1646-1657.
- 2009 Dennison, P.E., P.L. Nagler, K.R. Hultine, E.P. Glenn, and J.R. Ehleringer. Remote monitoring of tamarisk defoliation and evapotranspiration following saltcedar leaf beetle attack. *Remote Sensing of Environment*, 113, 1462-1472.
- 2009 Hansen, M.K., D.J. Brown, P.E. Dennison, S.A. Graves, and R.S. Brickleyer. Inductively mapping expert-derived soil-landscape units within dambo wetland catenae using multispectral and topographic data. *Geoderma*, 150, 72-84.
- 2008 Dennison, P.E., M.A. Moritz, and R.S. Taylor. Examining predictive models of chamise critical live fuel moisture in the Santa Monica Mountains, California. *International Journal of Wildland Fire*, 17, 18-27.
- 2008 Peterson, S.H., D.A. Roberts, and P.E. Dennison. Mapping live fuel moisture with MODIS data: a multiple regression approach. *Remote Sensing of Environment*, 112, 4272-4284.
- 2008 Clark, R.E., A.S. Hope, S. Tarantola, D. Gatelli, P.E. Dennison and M.A. Moritz. Sensitivity analysis of a fire spread model in a chaparral landscape. *Fire Ecology*, 4, 1-13.
- 2007 Dennison, P.E., D.A. Roberts, and S.H. Peterson. Spectral shape-based temporal compositing algorithms for MODIS surface reflectance data. *Remote Sensing of Environment*, 109, 510-522.
- 2007 Dennison, P.E., T.J. Cova, and M.A. Moritz. WUIVAC: A wildland urban interface evacuation trigger model applied in strategic wildfire scenarios. *Natural Hazards*, 41, 181-199.
- 2007 Powell, R.L., D.A. Roberts, P.E. Dennison, and L.L. Hess. Sub-pixel mapping of urban land cover using multiple endmember spectral mixture analysis: Manaus, Brazil. *Remote Sensing of Environment*, 106, 253-267.
- 2006 Dennison, P.E. Fire detection in imaging spectrometer data using atmospheric carbon dioxide absorption. *International Journal of Remote Sensing*, 27, 3049-3055.
- 2006 Dennison, P.E., K. Charoensiri, D.A. Roberts, S.H. Peterson, and R.O. Green. Wildfire temperature and land cover modeling using hyperspectral data. *Remote Sensing of Environment*, 100, 212-222.
- 2006 Roberts, D.A., P.E. Dennison, S. Peterson, S. Sweeney, and J. Rechel. Evaluation of AVIRIS and MODIS measures of live fuel moisture and fuel condition in a shrubland ecosystem in southern California. *Journal of Geophysical Research*, 111, G04S02.
- 2005 Dennison, P.E., D.A. Roberts, S.H. Peterson and J. Rechel. Use of normalized difference water index for monitoring live fuel moisture. *International Journal of Remote Sensing*, 26, 1035-1042.

- 2005 Cova, T.J., P.E. Dennison, T. Kim and M.A. Moritz. Setting wildfire evacuation trigger points using fire spread modeling and GIS. *Transactions in GIS*, 9, 603-617.
- 2004 Dennison, P.E., K.Q. Halligan and D.A. Roberts. A comparison of error metrics and constraints for multiple endmember spectral mixture analysis and spectral angle mapper. *Remote Sensing of Environment*, 93, 359-367.
- 2004 Herold, M., D.A. Roberts, M.E. Gardner and P.E. Dennison. Spectrometry for urban area remote sensing - Development and analysis of a spectral library from 350 to 2400 nm. *Remote Sensing of Environment*, 91, 304-319.
- 2003 Dennison, P.E., D.A. Roberts, S.R. Thorgusen, J.C. Regelbrugge, D. Weise and C. Lee. Modeling seasonal changes in live fuel moisture and equivalent water thickness using a cumulative water balance index. *Remote Sensing of Environment*, 88, 442-452.
- 2003 Dennison, P.E. and D.A. Roberts. The effects of vegetation phenology on endmember selection and species mapping in Southern California chaparral. *Remote Sensing of Environment*, 87, 295-309.
- 2003 Dennison, P.E. and D.A. Roberts. Endmember selection for multiple endmember spectral mixture analysis using Endmember Average RMSE. *Remote Sensing of Environment*, 87, 123-135.
- 2003 Roberts, D.A., P.E. Dennison, M. Gardner, Y.L. Hetzel, S.L. Ustin, and C. Lee. Evaluation of the potential of Hyperion for fire danger assessment by comparison to the Airborne Visible Infrared Imaging Spectrometer. *IEEE Transactions on Geoscience and Remote Sensing*, 41, 1297-1310.
- 2002 Riaño, D., E. Chuvieco, S. Ustin, R. Zomer, P. Dennison, D. Roberts, and J. Salas. Assessment of the vegetation regeneration after fire through the multitemporal analysis of AVIRIS images in the Santa Monica Mountains. *Remote Sensing of Environment*, 79, 60-71.

B. Funded Extramural Grants

- 2016-2017 One-time investment enabling routine production of a terrestrial ecosystem product for green vegetation, non-photosynthetic vegetation, and substrate fractions for AVIRIS, *National Aeronautics and Space Administration (NASA)*, Co-Investigator
- 2015-2017 Development and evaluation of a wildfire burn severity mapping tool using Google Earth Engine, *US Forest Service*, Principal Investigator
- 2015-2016 Exploration into use of GIS to select and rank the effectiveness of wildland firefighter safety zones, *US Forest Service*, Principal Investigator (new grant)
- 2014-2015 Exploration into use of GIS to select and rank the effectiveness of wildland firefighter safety zones, *US Forest Service*, Principal Investigator
- 2013-2016 Ecological Spectral Information System (ESIS): Integration of Spectral Data with Measurements of Vegetation Functional Traits, *NASA*, Co-Investigator

- 2013-2015 Geographic Data Chapter for the Chemical and Biological (CB) Agent Effects Manual 1, *Defense Threat Reduction Agency*, Co-Investigator
- 2013-2015 HypIRI Discrimination of Plant Species and Functional Types Along a Strong Environmental-Temperature Gradient, *NASA*, Co-Principal Investigator
- 2011-2015 Near Real Time Science Processing Algorithm for Live Fuel Moisture Content for the MODIS Direct Readout System, *NASA*, Co-Investigator
- 2011-2014 Protective Action Triggers, *National Science Foundation (NSF)*, Infrastructure Management and Extreme Events Program, Co-Principal Investigator
- 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
- 2011-2014 Climatic Drivers of Wildland Fire Events and Burn Severity, *Bureau of Land Management (BLM)*, Principal Investigator
- 2010-2014 Greater Sage-Grouse Habitat Use, *Utah Division of Wildlife Resources*, subcontract from Brigham Young University
- 2010-2012 Predicting phenological plant stages in the Upper Colorado Basin, *BLM*, Principal Investigator
- 2009 Remote Monitoring of Live Fuel Moisture Using a Soil Moisture Proxy, *BLM*, Principal Investigator
- 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
- 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
- 2007-2013 Hyperspectral algorithms for mapping hot object temperature and trace gas emission, *National Geospatial-Intelligence Agency (NGA)*, Principal Investigator
- 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
- 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
- 2004-2007 Multisite integration of LIDAR and hyperspectral data for improved estimation of carbon stocks and fluxes, *NASA*, Co-Investigator
- 2004-2007 Mechanisms controlling annual, interannual, and decadal changes in California's carbon budget, *NASA*, Co-Investigator
- 2004-2006 IDL/ENVI code for endmember selection for advanced spectral mixture analysis, *NGA*, Co-Investigator

- 2000-2003 Mapping wildland fuels using combined hyperspectral and synthetic aperture radar for fire hazard assessment, *NASA*, Earth System Science Fellowship Program

C. Reports, White Papers, and Book Chapters

- 2017 Roberts, D.A., M. Alonzo, E. Wetherley, K. Dudley, and P. Dennison. Multiscale analysis of urban areas using mixing models. In *Why Scale Still Matters: Applications That Advance GIScience and Remote Sensing*. Ed. D.A. Quattrochi et al., in press.
- 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. 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.
- 2016 Schoennagel, T., P. Morgan, J. Balch, P. Dennison, B. Harvey, R. Hutto, M. Krawchuk, M. Moritz, R. Rasker, and C. Whitlock. Insights from wildfire science: A resource for fire policy discussions. *Headwaters Economics*, <http://headwaterseconomics.org/wphw/wp-content/uploads/wildfire-insights-paper.pdf>
- 2016 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. 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. 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.
- 2015 Dennison, P.E., G.K. Fryer, M.J. Campbell, T.J. Cova, and B.W. Butler. 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. *HyspIRI 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. 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.

- 2009 Ustin, S.L., D. Riano, A. Koltunov, D.A. Roberts, and P.E. Dennison. Mapping fire risk in Mediterranean Ecosystems of California: Vegetation type, Density, Invasive Species and Fire Frequency. In Earth Observation of Wildland Fire in Mediterranean Ecosystems, Ed. E. Chuvieco, 41-54.

III. TEACHING AND ADVISING

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 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 | Environmental Optics | Spring 2006-2011, 2016, Fall 2012-2014 |
| GEOG 6445 | Remote Sensing of Vegetation | Spring 2015, 2017 |
| GEOG 6960 | Seminar on Hyperspectral Remote Sensing | Spring 2005 |
| 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 2013-2016 |

B. Postdoctoral Researchers

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|-----------|-------------------|
| 2012-2013 | Iryna Danilina |
| 2011-2012 | Audrey Wang |
| 2010 | Isabella Mariotto |

C. Chaired Graduate Committees

1. Ph.D.

a. Completed

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| 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

- 2014-present Mickey Campbell
- 2014-present Brent Lloyd

2. Master’s

a. Completed

- 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

2015-present Erika Wenrich
 2015-present Adam Clark
 2015-present Tim Berggren
 2016-present Lawrence Kellum

3. Master's of Science in Geographic Information Science

a. Completed

2016 Steven Arnold
 2016 Ed Graves
 2016 Xiaomin Jiao
 2015 Sam Hall
 2015 Emanuel Vasquez
 2014 Kaitlin Barklow
 2014 Brendan Duffy
 2014 Curtis Olson
 2014 Erich Rentz
 2014 Deb Traver

IV. SERVICE

A. Professional and Community Service

1. Editorial Boards

Remote Sensing of Environment 2011-present

2. Special Issues

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

3. Manuscript Reviews

Diversity and Distributions
Ecohydrology
Ecological Applications
Environmental Monitoring and Assessment
Environmental Research Letters
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 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 Communications
Pedosphere
Photogrammetric Engineering & Remote Sensing
Planetary and Space Science
PLOS ONE
Professional Geographer
Progress in Physical Geography
Rangeland Ecology and Management
Regional Environmental Change
Remote Sensing
Remote Sensing of Environment
Science of the Total Environment
Sensors
Soil Science Society of America Journal
Wetlands Ecology and Management

B. University Service

| | |
|--------------|--|
| 2015-present | Sustaining Biodiversity Transformative Excellence Committee |
| 2014-present | 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

- 2010, 2011, 2013, 2016 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

- 2009-2011, 2012-present 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-present Graduate Committee
- 2005-present Remote Sensing Focus Area Chair