

**Philip E. Dennison**

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Professor

Department of Geography

University of Utah

332 S 1400 E, Rm. 217

Salt Lake City, UT 84112

phone: (801) 585-1805

fax: (801) 581-8219

e-mail: dennison@geog.utah.edu

<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. 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.

- 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 Geographical Information Science*, 31, 1448-1466.
- 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*, 37, 601-611.
- 2017 Bart, R.R., C.L. Tague, and P.E. Dennison. Modeling annual grassland phenology along the Central Coast of California. *Ecosphere*, 8(7), e01875.
- 2017 Hansen, C.H., S.J. Burian, P.E. Dennison, and G.P. Williams. Spatiotemporal variability of lake water quality in the context of remote sensing models. *Remote Sensing*, 9(5), 409.
- 2017 Li, D., T.J. Cova, and P.E. Dennison. Using reverse geocoding to identify prominent wildfire evacuation trigger points. *Applied Geography*, 87, 14-27.
- 2017 Schoennagel, T., J.K. Balch, H. Brenkert-Smith, P.E. Dennison, B.J. Harvey, M.A. Krawchuk, N. Miekiewicz, P. Morgan, M.A. Moritz, R. Rasker, M.G. Turner, and C. Whitlock. Adapt to more wildfire in western North American forests as climate changes. *Proceedings of the National Academy of Sciences*, 114, 4582-4590.
- 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*, 191, 95-109.
- 2017 Thorpe, A.K., C. Frankenberg, D.R. Thompson, R.M. Duren, A.D. Aubrey, B.B. Bue, R.O. Green, K Gerilowski, T. Krings, J. Borchard, E.A. Kort, C. Sweeny, S. Conley, D.A. Roberts, and P.E. Dennison. Airborne retrievals of methane, carbon dioxide, and water vapor concentrations at high spatial resolution: application to AVIRIS-NG. *Atmospheric Measurement Techniques*, 10, 3833-3850.
- 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- $\mu$ 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 (HypIRI): 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 Grants

- 2017-2019 Improved trace gas plume detection using Indian and US AVIRIS-NG data, *National Aeronautics and Space Administration (NASA)*, Principal Investigator
- 2017-2021 Dynamic impacts of environmental change and biomass harvesting on woodland ecosystems and traditional livelihoods, *National Science Foundation (NSF) Coupled Natural Human Systems Program*, Co-Principal Investigator
- 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
- 2015-2017 Development and evaluation of a wildfire burn severity mapping tool using Google Earth Engine, *US Forest Service*, Principal Investigator
- 2016-2018 Exploration into use of GIS to select and rank the effectiveness of wildland firefighter safety zones, *US Forest Service*, Principal Investigator (new grant)
- 2014-2016 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 HypsIRI 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, *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. Refereed Reports

- 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.

**D. 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., Taylor Francis, 247-282.
- 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.

**E. Non-Refereed 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. 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. HypsIRI High-Temperature Saturation Study. Jet Propulsion Laboratory, National Aeronautics and Space Administration.

**F. Invited Presentations**

- 2018 Improving wildland firefighter safety using remote sensing. Boise State University, Jan 29, 2018, Boise ID.

- 2018 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.
- 2014 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.
- 2012 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.
- 2010 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.
- 2008 Detecting fire and methane using hyperspectral shortwave infrared remote sensing data. GEOINT 2008, Oct 29, 2008, Nashville.
- 2008 Assessing wildfire hazard in southern California using GIS and remote sensing. ESRI Users Conference, Aug 6, 2008, San Diego.
- 2008 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.
- 2008 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

- 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. Professional Conference Presentations

- 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.
- 2017 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.
- 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. *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.
- 2016 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.
- 2015 Dennison, P.E., A.R. Coates, D.A. Roberts, T.R. Berggren, and K.L. Roth. Monitoring the impacts of severe drought on plant species in Southern California chaparral. *American Geophysical Union Fall Meeting*, Dec 15 2015, San Francisco.
- 2015 Dennison, P.E., G.K. Fryer, M. Campbell, and B. Butler. Assessing firefighter safety zone characteristics. *International Wildland Fire Safety Summit & Human Dimensions of Wildland Fire Conference*, Apr 23 2015, Boise.
- 2015 Dennison, P.E. Wildfire research at the Utah Remote Sensing Applications Lab. *NASA Applied Science Program - Wildfire Program 2015 Annual Review*, Feb 10 2015, Salt Lake City.

- 2014 Dennison, P.E., A.R. Coates, D.A. Roberts, K. Dudley, and K.L. Roth. Changes in non-photosynthetic vegetation cover and liquid water thickness during California's record drought. *2014 HypsIRI Science Workshop*, Oct 14 2014, Pasadena.
- 2014 Dennison, P.E. Imaging spectroscopy for wildfire applications. *Ecological Society of America Annual Meeting*, Aug 13, 2014, Sacramento.
- 2014 Dennison, P.E., S.C. Brewer, J.D. Arnold, and M.A. Moritz. Large wildfire trends in the Western United States from MTBS data, 1984-2011. *Large Wildland Fires: Social, Political, and Ecological Effects*. May 20, 2014, Missoula, MT.
- 2014 Dennison, P.E., G.F. Fryer, and T.J. Cova. Automated identification of firefighter safety zones using lidar and multispectral data. *Large Wildland Fires: Social, Political, and Ecological Effects*. May 20, 2014, Missoula, MT.
- 2014 Dennison, P.E., A. Coates, D. Thompson, R. Green, and J. Boardman. L2 simulated HypsIRI VSWIR products: Spatial and noise characteristics. *HypsIRI Airborne Preparatory Campaign Meeting*, Mar 2014, Washington, DC.
- 2014 Dennison, P.E., D. Roberts, A. Coates, and K. Roth. Drought impacts on vegetation measured using simulated HypsIRI VSWIR products. *HypsIRI Airborne Preparatory Campaign Meeting*, Mar 2014, Washington, DC.
- 2013 Dennison, P.E., S.C. Brewer, J.D. Arnold, and M.A. Moritz. Regional trends in large wildfires and climate in the Western U.S., 1984-2010. *American Geophysical Union Fall Meeting*, Dec 2013, San Francisco.
- 2013 Dennison, P.E. and J. Boardman. Creating HypsIRI-like data using AVIRIS imagery acquired during the HypsIRI airborne campaign. *2013 HypsIRI Science Workshop*, Oct 2013, Pasadena.
- 2013 Dennison, P.E., A.K. Thorpe, D.A. Roberts, and E.R. Parydjak. Modeling sensitivity of imaging spectrometer data to carbon dioxide and methane plumes. *5th Workshop on Hyperspectral Image and Signal Processing*, Jun 27, 2013, Gainesville, FL.
- 2012 Dennison, P.E. and Y. Qi. Why don't we have remote monitoring of live fuel moisture yet? *5th International Fire Ecology and Management Congress*, Dec 5, 2012, Portland OR.
- 2012 Dennison, P.E., A.K. Thorpe, Y. Qi, D.A. Roberts, R.O. Green, E.S. Bradley and C.C. Funk. AVIRIS and HypsIRI sensitivity to atmospheric carbon dioxide plumes. *2012 HypsIRI Science Workshop*, Oct 2012, Washington DC.
- 2012 Dennison, P.E., and D.A. Roberts. Hyperspectral algorithms for mapping hot object temperature and trace gas emission. *National Geospatial-Intelligence Agency Academic Research Program Symposium*, Aug 22, 2012, Washington DC.
- 2011 Dennison, P.E., Y. Qi, A.K. Thorpe, E.R. Parydjak, D.A. Roberts, E.S. Bradley and C.C. Funk. High spatial resolution mapping of power plant carbon dioxide plumes using imaging spectrometer data. *American Geophysical Union Fall Meeting*, Dec 9, 2011, San Francisco.

- 2011 Dennison, P.E., and D.A. Roberts. Hyperspectral algorithms for mapping hot object temperature and trace gas emission. *National Geospatial-Intelligence Agency Academic Research Program Symposium*, Aug 30, 2011, Washington DC.
- 2011 Dennison, P.E., Y. Qi, A.K. Thorpe, D.A. Roberts, E.S. Bradley, and C.C. Funk. Detection and measurement of power plant CO<sub>2</sub> plumes using imaging spectrometer data. *2011 HypsIRI Science Workshop*, Aug 24 2011, Washington DC.
- 2011 Dennison, P.E. and D.S. Matheson. Spatial scaling of imaging spectrometer fire detection and temperature modeling. *2011 HypsIRI Science Workshop*, Aug 24, 2011, Washington DC.
- 2011 Dennison, P.E., A.N. Schaaf, G.K. Fryer, K.L. Roth, and D.A. Roberts. Mapping plant functional types across multiple spatial and spectral resolutions using multiple endmember spectral mixture analysis. *2011 AAG Annual Meeting*, Apr 15, 2011, Seattle.
- 2011 Dennison, P.E., R. Meng, A. Coates, Y. Qi, K. Hultine, P. Nagler, and E. Glenn. Remote monitoring of tamarisk defoliation by the saltcedar leaf beetle. *The Landscape Ecology of Tamarisk, 2011 Research Conference*. Feb 17, 2011, Tucson, AZ.
- 2010 Dennison, P.E., and D.A. Roberts. Hyperspectral algorithms for mapping hot object temperature and trace gas emission. *National Geospatial-Intelligence Agency Academic Research Program Symposium*, Sep 15, 2010, Washington DC.
- 2010 Dennison, P.E. and D.S. Matheson. Mapping effective fire temperature using AVIRIS and MASTER. *2010 HypsIRI Science Workshop*, Aug 25, 2010, Pasadena.
- 2010 Dennison, P.E., A.N. Schaaf, G.K. Fryer, K.L. Roth, and D.A. Roberts. Mapping vegetation across spatial and spectral scales using multiple endmember spectral mixture analysis. *2010 HypsIRI Science Workshop*, Aug 25, 2010, Pasadena.
- 2010 Dennison, P.E. Measuring fuel and wildfire properties using hyperspectral remote sensing data. *U.S. Forest Service Hyperspectral Symposium*, Jan 19, 2010, Salt Lake City, UT.
- 2009 Dennison, P.E., and D.A. Roberts. Hyperspectral algorithms for mapping hot object temperature and trace gas emission. *National Geospatial-Intelligence Agency Academic Research Program Symposium*, Sep 29, 2009, Washington DC.
- 2009 Dennison, P.E., K. Cavanaugh, D. Siegel, and R. Green. Mapping floating aquatic vegetation (kelp) with imaging spectroscopy at spatial scales from 4 to 60 m using linear spectral mixture modeling. *2009 HypsIRI Workshop*, Aug 12, 2009, Pasadena.

- 2009 Dennison P.E., A.N. Guess, K.R. Hultine, T. Maori, P.L. Nagler, E.P. Glenn, and J.R. Ehleringer. Using remote sensing to monitor tamarisk defoliation by the saltcedar leaf beetle in southern Utah. *2009 Utah Geographic Information Council Conference*, Apr 16, 2009, Midway, Utah.
- 2009 Dennison, P.E. Detecting wildfires in hyperspectral remote sensing data. *Association of American Geographers Annual Meeting*, Mar 25, 2009, Las Vegas.
- 2009 Dennison P.E., A.N. Guess, K.R. Hultine, T. Maori, P.L. Nagler, E.P. Glenn, and J.R. Ehleringer. Monitoring tamarisk defoliation by the saltcedar leaf beetle using remote sensing. *2009 Tamarisk and Russian Olive Research Conference*, Feb 19, 2009, Reno.
- 2008 Dennison, P.E. and M.A. Moritz. A critical live fuel moisture threshold for large fires in southern California: Threshold evidence and predictability. *Pacific Coast Fire Conference*, Dec 3, 2008, San Diego.
- 2008 Dennison, P.E., M.K. Hansen, and D.J. Brown. Classifying Ugandan wetland soils using multispectral and topographic remote sensing data. *3<sup>rd</sup> Global Workshop on Digital Soil Mapping*, Oct 2, 2008, Logan, UT.
- 2008 Dennison, P.E., and D.A. Roberts. Hyperspectral algorithms for mapping hot object temperature and trace gas emission. *National Geospatial-Intelligence Agency Academic Research Symposium*, Sep 10, 2008, Washington DC.
- 2008 Dennison, P.E., L. Kammer, and D. Roberts. Detecting fire in hyperspectral data for fire temperature measurement. *American Society for Photogrammetry & Remote Sensing 2008 Annual Conference*, Apr 30, 2008, Portland, OR.
- 2008 Dennison, P.E., P.L. Nagler, K.R. Hultine, E.P. Glenn, and J.R. Ehleringer. Monitoring the impacts of tamarisk biocontrol using remote sensing. *Twelfth Biennial USDA Forest Service Remote Sensing Applications Conference*, Apr 15, 2008, Salt Lake City.
- 2007 Dennison, P.E., M.K. Hansen, S.A. Graves, D.J. Brown, and E. Matthews. Mapping methane-significant dambo wetlands in central Uganda using remote sensing and topographic data, *American Geophysical Union Fall Meeting*, Dec 2007, San Francisco.
- 2007 Dennison, P.E., K.R. Hultine, and J.R. Ehleringer. Remote sensing of tamarisk defoliation by saltcedar leaf beetle, *2007 Tamarisk Symposium*, Oct 24, 2007, Grand Junction, CO.
- 2007 Dennison, P.E. and D.A. Roberts. Hyperspectral algorithms for mapping hot object temperature and trace gas emission. *National Geospatial-Intelligence Agency Academic Research Symposium*, Sep 12, 2007, Washington DC.
- 2007 Dennison, P.E. and M.A. Moritz. Evaluating predictive models of chaparral live fuel moisture for wildfire season forecasting in Southern California. *Association of American Geographers Annual Meeting*, Apr 19, 2007, San Francisco.
- 2006 Dennison, P.E., T.J. Cova, and M.A. Moritz. Modeling community evacuation triggers for extreme wildfire conditions. *Association of American Geographers Annual Meeting*, Mar 9, 2006, Chicago.

- 2005 Dennison, P.E., K. Charoensiri, R.O. Green, D.A. Roberts, and S.H. Peterson. Simultaneous retrieval of wildfire temperature and fuel type using AVIRIS. *2005 AVIRIS Earth Science and Applications Workshop*, May 27, 2005, Pasadena, CA.
- 2005 Dennison, P.E., K., Charoensiri, D.A. Roberts, S.H. Peterson, and R.O. Green. Deriving high-resolution fire parameters from hyperspectral remote sensing data for wildfire modeling. *Association of American Geographers Annual Meeting*, Apr 7, 2005, Denver.
- 2004 Dennison, P.E., D.A. Roberts, R.O. Green, J.L. Rechel, S.H. Peterson and C. Jones. Mapping fuels and fires in southern California chaparral using hyperspectral remote sensing. *Tenth Biennial USDA Forest Service Remote Sensing Applications Conference*, Apr 7, 2004, Salt Lake City.
- 2004 Dennison, P.E., and D.A. Roberts. Examining seasonal changes in canopy moisture using AVIRIS time series data. *2004 AVIRIS Earth Science and Applications Workshop*, Apr 1, 2004, Pasadena, CA.
- 2003 Dennison, P.E., D.A. Roberts and C. Lee. Measuring chaparral fuel type, biomass, and moisture for fire danger assessment in Southern California. *Association of American Geographers Annual Meeting*, Mar 10, 2003, New Orleans.
- 2003 Dennison, P.E. and D.A. Roberts. Endmember selection for multiple endmember spectral analysis. *12th Airborne Earth Science Workshop*, Feb 26, 2003, Pasadena, CA.
- 2002 Dennison, P.E., Remote sensing of southern California chaparral. *Wildfire Physics Workshop*, Oct 21, 2002, Quintette, CA.
- 2002 Dennison, P.E. and D.A. Roberts, Examining chaparral stand age and biomass using AIRSAR. *11th Airborne Earth Science Workshop*, Mar 6, 2002, Pasadena, CA.
- 2001 Dennison, P.E., D.A. Roberts, and C. Lee. Characterizing chaparral fuels using hyperspectral and synthetic aperture radar data. *RESAC Annual Meeting*, Apr 1, 2001, St. Louis.
- 2001 Dennison, P.E., M.E. Gardner, D.A. Roberts, and R.O. Green. Calibration and vegetation field spectra collection for the 2000 AVIRIS Hawaii deployment, *10th Airborne Earth Science Workshop*, Feb 24, 2001, Pasadena, CA.
- 2000 Dennison, P.E., D.A. Roberts, and C. Lee. Integrated assessment of wildfire hazard in southern California, *Integrating Research on Managing Wildland Fuels and Fires*, Nov 13, 2000, Los Alamos, NM.
- 2000 Dennison, P.E., D.A. Roberts, and J.C. Regelbrugge. Evaluation of synthetic aperture radar for fire hazard assessment in southern California chaparral ecosystems, *Progress in Electromagnetics Research Symposium*, Jul 9, 2000, Cambridge, MA.
- 2000 Dennison, P.E., D.A. Roberts, and J.C. Regelbrugge. Characterizing chaparral fuels using combined hyperspectral and synthetic aperture radar, *9th Airborne Earth Science Workshop*, Feb 24, 2000, Pasadena, CA.



**J. Interdisciplinary Research Affiliations**

2009-present	Global Change and Sustainability Center, University of Utah
2004-present	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 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, 2017
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 2013-2017

**B. Short Courses**

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

**A. Postdoctoral Researchers**

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

**B. Chaired Graduate Committees****1. Geography Ph.D.**

## a. Completed

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 ( <i>Centrocercus urophasianus</i> ) 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	Brent Lloyd
2017-present	Marco Allain

**2. Geography Master’s**

## a. Completed

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

- 2015-present Adam Clark
- 2015-present Tim Berggren
- 2016-present Sandra Miller

**3. Master’s of Science in Geographic Information Science**

a. Completed

- 2017 Sarah Rivera
- 2017 Siwen Cheng
- 2017 Michael Eichorn
- 2017 Sumerset Ellis
- 2017 Mitch Ottesen
- 2017 Megen Theobald
- 2017 Yiwei Wang
- 2017 Chelsea Welker
- 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

## V. SERVICE

### A. Professional and Community Service

#### 1. Editorial and Advisory Boards

<i>Remote Sensing of Environment</i> Editorial Board	2011-present
USGS Land Processes Distributed Active Archive Center User Working Group	2017-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*  
*Natural Hazards*  
*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 Applications: Society and Environment*  
*Remote Sensing of Environment*  
*Science of the Total Environment*  
*Sensors*  
*Soil Science Society of America Journal*  
*Wetlands Ecology and Management*

#### **4. Peer Review Panels**

Multiple NASA science programs

#### **5. Proposal Reviews**

Belgian Science Policy Office  
Fonds Québécois de la Recherche sur la Nature et les Technologies  
Fonds Wetenschappelijk Onderzoek  
Israeli Ministry of Science, Technology, and Space  
NASA Earth Venture Program  
NASA Postdoctoral Program  
NASA Terrestrial Ecology Program  
NOAA Global Climate Change Program  
NSF Earth Systems and Geoinformation Science  
NSF Geography and Spatial Science  
U.S. Civilian Research and Development Foundation  
University of Leuven Research Council  
User Support Programme, Earth Observation (Netherlands)