Hamid Dashti

Postdoctoral Research Associate, Department of Forest, and Wildlife Ecology
University of Wisconsin-Madison
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EDUCATION

Boise State University, *Boise, ID* 2019
PH.D. Geosciences
"Characterizing Dryland Ecosystems Using Remote Sensing and Dynamic Global Vegetation Modeling"
Advisor: Dr. Nancy F Glenn

Shahid Beheshti University,*Tehran, Iran* 2011
M.Sc. Remote sensing and Geographical Information Systems.
"Estimating Rice Chlorophyll Content Using Multispectral Data"
Advisor: Dr. Roshanak Darvishzadeh

Gorgan University of Agriculture and Natural Resources, *Gorgan, Iran* 2008
B.Sc. Natural Resources Engineering

PROFESSIONAL APPOINTMENTS

Department of Forest and Wildlife Ecology, University of Wisconsin-Madison 2021 – present
POSTDOCTORAL RESEARCH ASSOCIATE
"Integrated modeling and observation of the feedback between photosynthesis, leaf optics, active and passive fluorescence, and leaf biochemical and biophysical properties"
PI: Dr. Min Chen

School of Natural Resources and the Environment, University of Arizona 2019 - 2021
POSTDOCTORAL RESEARCH ASSOCIATE
"Improving Mechanistic Representation of Arctic Carbon Dynamics Using Data Assimilation."
PI: Dr. David JP Moore

Co-founder, Spatial Sciences Innovators 2012 - 2014

PUBLICATIONS

Hamid Dashti., Min Chen., William K Smith., Kaiguang Zhao., David JP Moore, (2023). Rethinking Disturbance Recovery: What it Was or What it Could Have Been? Global Change Biology. (Under Review).

Jashua Enterkine., Hamid Dashti., Trevor T Caughlin., Nancy F Glenn.(2023), Applied soft classes and fuzzy confusion in a patchwork semi-arid ecosystem: stitching together classification techniques to preserve ecologically-meaningful information. Remote Sensing of Environemnt.

Luo, M., Li, F., Hao, D., Zhu, Q., Dashti, H., & Chen, M. (2023). Uncertain spatial pattern of future land use and land cover change and its impacts on terrestrial carbon cycle over the Arctic–Boreal region of North America. Earth's Future, 11, e2023EF003648. https://doi.org/10.1029/2023EF003648

Hamid Dashti, William K Smith, Xueli Huo, Andrew Fox, Mostafa Javadian, Charles John Devine, Ali Behrangi, and David JP Moore (2022). *Underestimation of the impact of land cover change on the biophysical environment of the Arctic and Boreal Region of North America*. Environmental Research Letter. http://iopscience.iop.org/article/10.1088/1748-9326/ac8da7

Fox, A. M., Huo, X., Hoar, T. J., Dashti, H., Smith, W. K., MacBean, N., et al. (2022). *Assimilation of global satellite leaf area estimates reduces modeled global carbon uptake and energy loss by terrestrial ecosystems*. Journal of Geophysical Research: Biogeosciences, 127, e2022JG006830. https://doi.org/10.1029/2022JG006830

Ilangakoon, N, Glenn, NF, Schneider, FD, Dashti, H, Hancock, S, Spaete, L & Goulden, T (2021). *Airborne and Spaceborne Lidar Reveal Trends and Patterns of Functional Diversity in a Semi-Arid Ecosystem*. Frontiers in Remote Sensing, vol. 2. https://doi.org/10.3389/frsen.2021.743320

Ilangakoon Nayani, Glenn NF, Schneider FD, Dashti H, Hancock S, Spaete L and Goulden T (2021) Airborne and Spaceborne Lidar Reveal Trends and Patterns of Functional Diversity in a Semi-Arid Ecosystem. Front. Remote Sens. 2:743320. DOI: 10.3389/frsen.2021.743320

Kerry, Cawse-Nicholson., Philip A. Townsend., David, Schimel., Ali, M. Assiri., Pamela, L. Blake, Maria, Fabrizia Buongiorno., Petya, Campbell., Nimrod, Carmon., Kimberly A. Casey., Rosa, Elvira Correa-Pabón, Kyla M. Dahlin., Hamid Dashti, Philip, Dennison, Heidi Dierssen, Adam Erickson, Joshua B. Fisher, Robert Frouin, Charles K. Gatebe, Hamed Gholizadeh, Michelle Gierach, Nancy F. Glenn, James A. Goodman, Daniel M. Griffith, Liane Guild, Christopher R. Hakkenberg, Eric J. Hochberg, Thomas R.H. Holmes, Chuanmin Hu, Glynn Hulley, Karl F. Huemmrich, Raphael M. Kudela, Raymond F. Kokaly, Christine M. Lee, Roberta Martin, Charles E. Miller, Wesley J. Moses, Frank E. Muller-Karger, Joseph D. Ortiz, Daniel B. Otis, Nima Pahlevan, Thomas H. Painter, Ryan Pavlick, Ben Poulter, Yi Qi, Vincent J. Realmuto, Dar Roberts, Michael E. Schaepman, Fabian D. Schneider, Florian M. Schwandner, Shawn P. Serbin, Alexey N. Shiklomanov, E. Natasha Stavros, David R. Thompson, Juan L. Torres-Perez, Kevin R. Turpie, Maria Tzortziou, Susan Ustin, Qian Yu, Yusri Yusup, Qingyuan Zhang, (2021). *NASA's Surface Biology and Geology Designated Observable: A Perspective on Surface Imaging Algorithms.* Remote Sensing of Environment 257: 112349. https://www.sciencedirect.com/science/article/pii/S0034425721000675.

Pandit, K., **Dashti, H.**, Hudak, A. T., Glenn, N. F., Flores, A. N., & Shinneman, D. J., (2021). *Understanding the effect of fire on vegetation composition and gross primary production in a semi-arid shrubland ecosystem using the Ecosystem Demography (EDv2.2) model*. Biogeosciences Discuss., 2021, 1–20.

Dashti, H., Pandit, K., Glenn, N.F., Shinneman, D.J., Flerchinger, G.N., Hudak, A.T., de Graaf, M.A., Flores, A., Ustin, S., Ilangakoon, N., Fellows, A.W., (2021). *Performance of the ecosystem demography model (EDv2.2) in simulating gross primary production capacity and activity in a dryland study area*. Agric. For. Meteorol. 297, 108270.

H. Dashti, N. F. Glenn, S. Ustin, J. J. Mitchell, Y. Qi, N. T. Ilangakoon, A. N. Flores, J. L. Silván-Cárdenas, K. Zhao, L. P. Spaete, and M. de Graaff, (2019). *Empirical Methods for Remote Sensing of Nitrogen in Drylands May Lead to Unreliable Interpretation of Ecosystem Function*. IEEE Trans. Geosci. Remote Sens., pp. 1–12.

H. Dashti, A. Poley, N. F. Glenn, N. Ilangakoon, L. Spaete, D. Roberts, J. Enterkine, A. N. Flores, S. L. Ustin, and J. J. Mitchell, (2019). *Regional Scale Dryland Vegetation Classification with an Integrated Lidar-Hyperspectral Approach.* Remote Sensing, vol. 11, no. 18.

Pandit, K., **Dashti, H**., Glenn, N. F., Flores, A. N., Maguire, K. C., Shinneman, D. J., Fellows, A. W., (2019). *Developing and optimizing shrub parameters representing sagebrush (Artemisia spp.) ecosystems in the northern Great Basin using the Ecosystem Demography (EDv2.2) model*. Geosci. Model Dev., 12(11), 4585–4601. https://doi.org/10.5194/gmd-12-4585-2019

N. T. Ilangakoon, N. F. Glenn, **H. Dashti**, T. H. Painter, T. D. Mikesell, L. P. Spaete, J. J. Mitchell, and K. Shannon (2018), *Constraining plant functional types in a semi-arid ecosystem with waveform lidar*. Remote Sens. Environ., vol. 209, pp. 497–509.

Darvishzadeh, R., Matkan, A. A., **Dashti, A**. (2011*). Inversion of a Radiative Transfer Model for Estimation of Rice Canopy Chlorophyll Content*, IEEE, Journal of Selected Topics in Earth Observations and Remote Sensing JSTARS, VOL. 5, N. 4, 1222-1230. (**Equal contribution**)

Dashti, A., Darvishzadeh, R., Matkan, A., Hajeb, M. (2012). *Inversion of a Radiative Transfer Model for Estimation of Rice Canopy Chlorophyll Content Using Iterative Optimization and ALOS images*, Iranian Journal of Remote Sensing and Geographic Information System, VOL. **12**, N. 2(in Persian).

Shaki, F., Bernard, F., Darvishzadeh, R, **Dashti, H**. (2013). *Estimation of Nitrogen Content in Soybean Using Remote Sensing*, Physical Geography Research Quarterly, Vol 45, N.2. p, 102-124 (in Persian).

CURRENT PROJECTS and COLLABORATIONS

Fujiang Ji., Fa Li ., Dalei Hao., Alexey N. Shiklomanov., Xi Yang., Philip A. Townsend., **Hamid Dashti**., Tatsuro Nakaji., Kyle R. Kovach., Haoran Liu., Meng Luo., Min Chen. (2023) *Unveiling the transferability of PLSR models for leaf trait estimation: lessons from a comprehensive analysis with a novel global dataset.* New Phytologist (**Under Review**)

Huo, X., Fox, A., **Dashti, H**., Devine, C., Gallery, W., Smith, W., Raczka, B., Anderson, J., Rogers, A., & Moore, D. "Assimilating leaf area index and aboveground biomass reveals new processes in carbon update in the Arctic and Boreal Region." AGU Biogeosciences (Under review).

Xueli Huo, Andrew M. Fox, Tim Hoar, **Hamid Dashti**, William K. Smith, Charles J Devine, David JP Moore, Data assimilation of LAI and biomass into CLM to constrain carbon dynamics in the Arctic and Boreal region (In preparation).

Hamid Dashti, Min Chen, Jennifer Johnson, William Woodgate, Nastassia Vilfan, Troy Magney, Joe Berry. Integrated modeling and observation of the feedback between photosynthesis, leaf optics, active and passive fluorescence, and leaf biochemical and biophysical properties.

TEACHING

Scientific Programing (Undergraduate), University of Wisconsin-Madison 2023
Guest Lecture

Special Topics in Remote Sensing and Ecology of the Arctic Boreal Zone, University of Arizona
Instructor 2020

Advanced Remote Sensing and Image Processing (Graduate), Boise State University
Guest Lecture 2018

Remote Sensing and Image Processing (undergraduate), Boise State University
Guest Lecture 2017

Introduction to Remote Sensing (undergraduate), K. N. Toosi University of Technology
Guest Lecture 2012

GRANTS

Assessing the Impact of States and National Climate Policies and Food Behavioral Changes on the US Dairy Industry (Lead Author, Co-PI) 2023
Dairy Innovation Hub (**Funded**) – **147,575$**

Graduate Research Fellowship Program, Department of the Interior, 2017-2018
Northwest Climate Adaptation Science Center (**Funded**)

Remote Sensing Theory, NASA ROSES (Unfunded) 2020

SKILLS

Theoretical and applied remote sensing

Geospatial data science

Earth System Models

Data assimilation and data fusion

Programming languages: Python, MATLAB, R, Shell script,, HPC and HTC, Clouds

Software: ArcGIS, ENVI, QGIS, ERDAS

FELLOWSHIP AND AWARDS

Graduate Student Showcase award, Boise State University 2019

PhD Graduate Student Support, NASA Terrestrial Ecology Program (through grant #NNX14AD81G) 2014-2017

Top 1 Percent of Master Program Entrance Exam 2008

PROFESSIONAL WORKSHOPS

PhysFest3 workshop, Kansas State University. 2021

CyVerse Learning - Foundations of Open Science Skills (FOSS), University of Arizona 2020

Surface Biology and Geology (SBG) Community workshop, DC. 2019

HyspIRI Science and Applications workshop, DC. 2018

FluxCourse workshop, Boulder, CO. 2017

Hyperspectral image and signal processing: Evolution in remote sensing, Los Angeles, CA. 2016

PROFESSIONAL and ACADEMIC SERVICES

Reviewer

Remote sensing of the environment; IEEE Transactions on Geoscience and Remote Sensing; Remote sensing; Ecological Applications, Biogeoscience

Academic Services

NASA Review Panel, A.39 Early Career Investigator Program – Earth Science (ECIP-ES) 2023

NEON, Remote Sensing Technical Group 2023

Chair of Scientific Outreach, University of Arizona Postdoctoral Association 2019-Now

Science Careers for Students, Oscar F. Smith High School 2021

Conference organizing committee member, "Arizona Postdoctoral Research Conference 2021", University of Arizona 2021

NASA Surface Biology and Geology, Algorithm Development group 2018-Now

Series of Remote Sensing and GIS Training Workshops, Tehran, Iran 2012-2014

Preparing underrepresented students for the college entrance exam, Saravan, Iran 2010

CONFERENCES (Including talks and posters)

Hamid Dashti, Min Chen, Jennifer E Johnson, Will Woodgate, Nastassia Vilfan, Troy Magney, Joe A Berry. Integrated modeling and observation of the feedback between photosynthesis, leaf optics, active and passive fluorescence, and leaf biochemical and biophysical properties. AGU Fall Meeting. Dec 2022.

Xueli Huo, Andrew M Fox, Hamid Dashti, Charles J Devine, Brett Raczka, William Kolby Smith, Jeffrey Anderson, David J Moore. Assimilating Leaf Area Index and Aboveground Biomass into CLM Changes Carbon, Water and Energy Cycles in the Arctic and Boreal Region. AGU Fall Meeting. Dec 2022.

Hamid Dashti, William Smith, Xueli Huo, Andrew Fox, Charles Devine, David Moore. Comparing compositional and standard multivariate analyses of land cover data. AGU Fall Meeting. Online, Dec 2021.

Xueli Huo, Andrew Fox, Timothy Hoar, Hamid Dashti, Charles Devine, William Smith, Jeffrey Anderson, David Moore. Data assimilation of LAI and biomass into CLM to constrain carbon dynamics in the Arctic and Boreal region. AGU Fall Meeting. Online, Dec 2021.

Hamid Dashti, William K Smith, Andrew M. Fox, Charles J Devine, Xueli Huo, and David J.P. Moore. "The Interconnection Between Lanc Cover and Land Surface Temperature in the Arctic and Boreal Regions." Ecological Society of America Meeting. Online, August 2021.

Hamid Dashti, William Kolby Smith, Andrew M Fox, Charles J Devine, Xueli Huo, Siyu WANG, and David JP Moore. "The impact of land use land cover change on LST and its drivers in the arctic and boreal regions." AGU Fall Meeting 2020. Online, December 2020.

Joel A Biederman, William Kolby Smith, Fangyue Zhang, Nathan Pierce, Dong Yan, Charles J Devine, Hamid Dashti, Matthew Roby, Russell L Scott, Xian Wang, Jia Hu, and Daniel L Potts., "Linking above- and below-ground responses to temporal repackaging of precipitation in a semiarid grassland agroecosystem". AGU Fall Meeting 2020. Online, December 2020.

Josh Enterkine, Nancy F Glenn, Hamid Dashti, Susan Ustin, and Yuri Knyazikhin, "Canopy structure: the link between optical and lidar remote sensing through canopy spectral invariants." AGU Fall Meeting 2020. Online, December 2020.

X Huo, AM Fox, TJ Hoar, JL Anderson, WK Smith, H Dashti, DJP Moore. "Using Data Assimilation of Leaf Area Index to Constrain Decadal Global Carbon Dynamics in the Community Land Model 5.0." AGU Fall Meeting 2020. Online, December 2020.

Dashti, H., Pandit, K., Glenn, N., Shinneman, D., Flerchinge, G., Hudak, A., de Graaff, M., Flores, A., Ustin, S., Ilangakoon, N., Fellows, A. "Evaluating the Performance of a Vegetation Demographic Model (EDv2.2) in Drylands". B53P-2628. AGU Fall Meeting 2019, San Francisco, CA, December 2019.

Dashti, H., Glenn, F.N, Illangakoon, N., Ustin, S, De Graaff, M, Flores, L. Qi, Y, Spaete, L. "Mapping vegetation biodiversity of semi-arid ecosystems using hyperspectral remote sensing", ESA 2017, Portland, OR, August 2017.

Dashti, H., Glenn, N.F., Jessica, M., Spaete, L. “Estimation of sagebrush biochemical and biophysical parameters using hyperspectral imagery and inversion of radiative transfer models”. ,57th Idaho Academy of Science and Engineering (IASE) Annual Meeting and Symposium, Boise, ID, March 2015.

Dashti, H., Glenn, N, Jessica, M. Spaete, L., Lejo, F. Qingtao.Z., Matt, M. “Improving Ecosystem Dynamic Models in a Semi-arid Ecosystem by Integrating Different Sources of Remotely Sensed Data”., CSDMS Annual Meeting, Boulder, Colo, May 2015.

Hamid Dashti., Nancy Glenn., Nayani Illangakoon., Jessica J Mitchell., Shital Dakhal., Lucas Spaete."Comparison of linear and non-linear regression models to estimate leaf area index of dryland shrubs"., B43C-0574, AGU Fall Meeting, San Francisco, CA, December 2015

Darvishzadeh, R., Matkan, A. A., Dashti, A., (2009). “Inversion of a Radiative Transfer Model for Estimation of Rice Canopy Chlorophyll Content”, 34th International Symposium on Remote Sensing of Environment (ISPRSE), Sydney, Australia.

CHAPTER BOOKS, DATASETS, AND OTHER PRODUCTS

J. J. Mitchell, N. F. Glenn, K. M. Dahlin, N. T. Ilangakoon, H. Dashti, and M. C. Maloney, “Integrating Hyperspectral and LiDAR Data in the Study of Vegetation.,” in Hyperspectral Remote Sensing of Vegetation (Volume I), II Ed., P. S. Thenkabail, J. G. Lyon, and A. Huete, Eds. London, Ney York: CRC Press-Taylor and Francis group, 2018, p. 449.

H.Dashti; Poley, Andrew; Glenn, Nancy; Ilangakoon, Nayani; Spaete, Lucas; Roberts, Dar; Enterkine, Josh; Flores, Alejandro; Ustin, Susan and Mitchell, Jessica. (2019). “Vegetation maps for Reynolds Creek Experimental Watershed (RCEW)for the year 2015”.

H. Dashti, N. F. Glenn, L. P. Spaete, and N. Ilangakoon, “Hyperspectral Imagery from AVIRIS-NG for Sites in ID and CA, USA, 2014 and 2015.” ORNL Distributed Active Archive Center, 2018.

N. F. Glenn, L. P. Spaete, R. Shrestha, A. Li, N. Ilangakoon, J. MitchelL, U. S. L, Y. Qi, H. Dashti, and K. Finan, “Shrubland Species Cover, Biometric, Carbon and Nitrogen Data, Southern Idaho, 2014.” ORNL Distributed Active Archive Center, 2017.

PROFESSIONAL ORGINAZATION

American Geophysical Union	2014-Now
The Ecological Society of America	2017-Now