Nima Madani

EDUCATION

PhD of Systems Ecology. NTSG, University of Montana 2017

MA of Environmental Planning and Management, University of Tehran- Iran 2008

BA of Natural Resources-Environment. University of AMN- Iran 2001

PROFESSIONAL EXPERIENCE

Assistant researcher. UCLA Joint Institute for Regional Earth System Science & Engineering (2022-present).
Postdoctoral fellow. NASA- Jet Propulsion Laboratory (2018-2022).
Research scientist. NASA SMAP L4C product validation and maintenance. NTSG- University of Montana (2016-2018).
Graduate Research Assistant. NTSG, University of Montana (2011-2015).

RESEARCH INTERESTS

The focus of my research is improving our understanding of important ecosystem processes such as gross primary production in response to changes in temperature and water cycle at global scales. Accelerated climate change including changes in temperature and precipitation patterns and extreme weather events are affecting ecosystems processes, leading to shifts in species distributions, changes in phenology, productivity, composition of plant communities, and other biogeochemical processes. Using remote sensing observations, modeling, ecological and biophysical measurements, my research goal is to understand the response of ecosystems to changes in water availability and temperature.

SELECTED PUBLICATIONS

- PI Palmer, CM Wainwright, B Dong, RI Maidment, KG Wheeler, **Madani, N.** et al. 2023. Drivers and impacts of Eastern African rainfall variability. Nature Reviews Earth & Environment, 1-17.
- JD Watts, M Farina, JS Kimball, LD Schiferl, Z Liu, KA Arndt, D Zona. **Madani, N.** et al. 2023. Carbon uptake in Eurasian boreal forests dominates the high-latitude net ecosystem carbon budget. Global Change Biology 29 (7), 1870-1889.
- JD Watts, SM Natali, C Minions, D Risk, K Arndt, D Zona, ES Euskirchen, **Madani. N.** et al. Soil respiration strongly offsets carbon uptake in Alaska and Northwest Canada. 2021. Environmental Research Letters 16 (8), 084051.
- A Farahmand, JT Reager, **N Madani.** 2021. Drought Cascade in the Terrestrial Water Cycle: Evidence from Remote Sensing. Geophysical Research Letters, e2021GL093482.
- **Madani, N.**, Parazoo, N, Kimball, J. S., et al. 2021. The Impacts of Climate and Wildfire on Ecosystem Gross Primary Productivity in Alaska. JGR Biogeosciences. https://doi.org/10.1029/2020JG006078

- Liu Z, Kimball J S, Ballantyne A P, Parazoo N C, Wang W J, Bastos A, **Madani N**, Natali S M, Watts J D, Rogers B M, Ciais P, Yu K, Virkkala A M, Chevallier F, Peters W, Patra P K and Chandra N 2022 Respiratory loss during late-growing season determines the net carbon dioxide sink in northern permafrost regions Nat. Communications. 13 5626
- **Madani, N.**, Kimball, J. S., Parazoo, N., Ballantyne, A., Tagesson, T., Jones, L., et al. 2020. Below-surface water mediates the response of African forests to reduced rainfall. *Environmental Research Letters*. 15. 034063
- **Madani, N.**, Parazoo, N., Kimball, J.S., Ballantyne A.P., Reichle R.H., Maneta, M., Saatchi, S., Palmer, P.I., Liu, Z., Tagesson, T., 2020. Reduced Productivity Due to Water Constraints offsets recent Amplified Global Gross Primary Productivity Due to Temperature Increase. *AGU Advances*. 10.1029/2020AV000180. Media:
  EOS: https://eos.org/editor-highlights/water-stress-controls-the-capacity-of-the-terrestrial-carbon-sink
  NASA: https://www.nasa.gov/feature/goddard/2020/water-limitations-in-the-tropics-offset-carbon-uptake-from-arctic-greening/
- Tagesson. T., Tian, F., Schurgers, G., Horion, S., Scholes, R., Ahlström, A., Ardö, J., Moreno, A., **Madani, N.,** Olin, S.,Fensholt., R., 2020. Physiologically based estimations of global gross primary production using Earth observations. *Global change biology.* In press.
- Liu Z, Kimball J S, Parazoo N C, Ballantyne A P, Wang W J, **Madani N.**, Pan C G, Watts J D, Reichle R H, Sonnentag O, Marsh P, Hurkuck M, Helbig M, Quinton W L, Zona D, Ueyama M, Kobayashi H and Euskirchen E S. (2019). Increased high-latitude photosynthetic carbon gain during an anomalously warm spring offset by respiration carbon loss during preceding winter R *Glob. Chang. Biol*. 1-15
- Natali S M, Watts J D, Rogers B M, Potter S, Ludwig S M, Selbmann A K, Sullivan P F, Abbott B W, Arndt K A, Birch L, Björkman M P, Bloom A A, Celis G, Christensen T R, Christiansen C T, **Madani N**, et al. (2019). Large loss of CO_2 in winter observed across the northern permafrost region *Nature climate change*. **9** 852-7.
- **Madani, N.**, J.S. Kimball, A. P. Ballantyne, D. L.R. Affleck, P. M. van Bodegom, P. B. Reich, J.Kattge, A. Sala, M. Nazeri, M. O. Jones, M. Zhao, S. W. Running. (2018). Future global productivity will be affected by plant trait response to climate. *Nature Scientific Reports, 18*. Media: http://news.umt.edu/2018/03/030518plan.php
- **Madani, N.**, J. S. Kimball, L. A. Jones, N. C. Parazoo, K. Guan (2017). Global Analysis of Bioclimatic Controls on Ecosystem Productivity Using Satellite Observations of Solar-Induced Chlorophyll Fluorescence. *Remote Sensing. 9 (530)*.
- **Madani, N.**, J. S. Kimball, S. W. Running. (2017). Improving global gross primary productivity estimates by computing optimal light use efficiency using flux tower data. *J. Geophys. Res. Biogeosciences*, 122.
- Jones, L., Kimball, J., Reichle, R., **Madani, N.**, Glassy, J., Ardizzone, J. et al. (2017). The SMAP Level 4 Carbon Product for Monitoring Ecosystem Land-Atmosphere CO2 Exchange. *IEEE Trans. 99*.
- M. Fonseca, L. Anderson, E. Arai, Y. Shimabukuro, H. Xaud, M. Xaud, **N. Madani**, F. Wagner, L. Aragão. (2017). Climatic and anthropogenic drivers of northern Amazon fires during the 2015/2016 El Niño event. *Ecological Applications. 1628*. DOI: 10.1002/eap.1628
- **Madani, N.**, J. S. Kimball, D. L. R. Affleck, J. Kattge, J. Graham, P. M. van Bodegom, P. B. Reich, and S. W. Running (2014). Improving ecosystem productivity modeling through

spatially explicit estimation of optimal light use efficiency, *J. Geophys. Res. Biogeosciences*, *119* (9).

- **Madani, N**., Kimball, J., Nazeri, N., Kumar, L. Affleck, D. L. R (2016). Remote sensing derived fire frequency, soil moisture and ecosystem productivity explain regional movements in emu over Australia. *PlosOne, 11, 1-11.*