

Stefanie M. Herrmann, PhD
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EDUCATION

PhD Arid Lands Resource Sciences, University of Arizona, Tucson (2006)

MSc Geography, Universität Würzburg, Germany (2001)

BSc Geography, Université de Caen, France (1998)

APPOINTMENTS

The University of Arizona, Tucson (Jan. 2011 – present)

- **Research Scientist**, Arizona Institute for Resilience; School of Natural Resources and the Environment; Office of Arid Land Studies

NASA Goddard Space Flight Center, Greenbelt, MD (Jan. 2009 – Dec. 2010)

- **Research Scientist**, Biospheric Sciences Branch (through Science Systems & Applications, Inc.)

National Center for Atmospheric Research, Boulder, CO (Sep. 2006 – Sep. 2008)

- **Post-doctoral Research Fellow**, Institute for the Study of Society and Environment

The University of Arizona, Tucson (Jan. 2002 – Aug. 2006)

- **Graduate Research Assistant**, The Office of Arid Land Studies & Arizona Remote Sensing Center
- **Graduate Teaching Assistant**, Graduate Interdisciplinary Programs

Jacob Blaustein Institute for Desert Research, Sede Boqer, Israel (Nov. 1999 – Oct. 2000)

- **Research Assistant**, Remote Sensing Laboratory

REFEREED PUBLICATIONS

[Google Scholar Profile](#)

Journal Articles:

- Smith, W.K., Reed, S., Villareal, M., **Herrmann, S.M.**, Rutherford, A., Javadian, M., Lauria, C., Devine, C., Zheng, F., Kokaly, R. and Poulter, B. (2025): Multiscale remote sensing of functional indices within a long-term climate manipulation experiment reveals a novel biocrust degradation - climate warming amplification feedback. *In preparation*
- **Herrmann, S.M.**, Walker, J.J., Villareal, M.L., Munson, S.M., Rigge, M.B., Smith, W.K., Breshears, D.D. and Souldard, C.E. (2025): Climate pivot points project western US vegetation cover reductions" to Communications Earth & Environment. *In review for Communications Earth & Environment*
- Costa, D.P., Lentini, C.A., Cunha Lima, A.T., Duverger, S.G., Vasconcelos, R.N., **Herrmann, S.M.**, Ferreira-Ferreira, J., Oliveira, M., da Silva Barbosa, L., Leandro Cordeiro, C., Afonso Santos, N., Oliveira Franca Rocha, R., Souza, D.T.M. and Franca

Rocha, W. J. (2024). All Deforestation Matters: Deforestation Alert System for the Caatinga Biome in South America's Tropical Dry Forest. *Sustainability*, 16(20), 9006.

- Franca Rocha, W.J.S., Vasconcelos, R.N., Costa, D.P., Duverger, S.G., Lobão, J.S.B., Souza, D.T.M., **Herrmann, S.M.**, Santos, N.A., Franca Rocha, R.O., Ferreira Ferreira, J., Oliveira, M., da Silva Barbosa, L., Leandro Cordeiro, C., and Aguiar, W.M. (2024): Towards Uncovering Three Decades of LULC in the Brazilian Drylands: Caatinga biome dynamics (1985-2019). *Land*, 13(8), 1250.
- Tong, X., Brandt, M., Rasmussen, L.V., Hiernaux, P., Bruun, T.B., Reiner, F., Abdi, A.M., **Herrmann, S.M.**, Li, S. and Fensholt, R. (2024): Nano-satellites uphold Boserup's theory of smallholder agricultural intensification. *Submitted to Nature Sustainability*
- Costa, D. P., **Herrmann, S.M.**, Vasconcelos, R.N., Galano Duverger, S., Franca Rocha, W.J.S., Cambuí, E.C.B., Lobão, J.S.B., Santos, E.M.R., Ferreira Ferreira, J., Oliveira, M., da Silva Barbosa, L., Cunha Lima, A.T., Lentini, C.A.D. (2023): Bibliometric Analysis of Land Degradation Studies in Drylands Using Remote Sensing Data: a 40 Years Review. *Land* 12(9): 1721
- **Herrmann, S.M.**, Brandt, M., Rasmussen, K. and Fensholt, R. (2020): Accelerating land cover change in West Africa over four decades as population pressure increased. *Communications Earth and Environment*. DOI: 10.1038/s43247-020-00053-y
- Nagler, P.L., Barreto-Munoz, A., Chavoshi Borujeni, S., Jarchow, C.J., Gomez-Sapiens, M., Nouri, H., **Herrmann, S.M.** and Didan, K. (2020): Ecohydrological Response to Surface Flow Between Borders: The Lower Colorado River in the USA to the Delta in Mexico. *Hydrological Processes*. DOI: 10.1002/hyp.13911
- Jarchow, C.J., Waugh, J.W., Didan, K., Barreto-Muñoz, A., **Herrmann, S.** and Nagler, P.N. (2020): Vegetation and Groundwater Dynamics at a Former Uranium Mill Site Following Invasion of a Biological Agent: An Analysis Using Landsat Normalized Difference Vegetation Index (NDVI) Data. *Hydrological Processes* <https://doi.org/10.1002/hyp.13772>
- Tong, X., Brandt, M., Hiernaux, P. **Herrmann, S.**, Rasmussen, L.V., Rasmussen, K., Tian, F., Tagesson, T., Zhang, W. and Fensholt, R. (2020): The forgotten land use class: Mapping fallow fields across the Sahel using Sentinel-2. *Remote Sensing of Environment* 239. <https://doi.org/10.1016/j.rse.2019.111598>
- **Herrmann, S.**, Diouf, A.A. and Sall, I. (2020): Beyond Bioproductivity: Engaging Local Perspectives in Land Degradation Monitoring and Assessment. *Journal of Arid Environments* 173. <https://doi.org/10.1016/j.jaridenv.2019.104002>
- Smith, W.K., Dannenberg, M.P.; Yan, D., **Herrmann, S.**, Barnes, M.L., Barron-Gafford, G.A., Biederman, J.A., Ferrenberg, S., Fox, A.M., Hudson, A.R., Knowles, J.F., MacBean, N., Moore, D.J., Nagler, P.L., Reed, S.C., Rutherford, W.A., Scott, R.L., Wang, Z. and Yang, J. (2019): Remote sensing of dryland ecosystem structure and

function: Progress, challenges and opportunities. *Remote Sensing of Environment* 233. doi:10.1016/j.rse.2019.111401

- Brandt, M., Hiernaux, P., Rasmussen, K., Tucker, C.J., Wigneron, J.-P., Diouf, A.A., **Herrmann, S.**, Zhang, W., Kergoat, L., Mbow, C, Abel, C., Auda, Y. and Fensholt, R. (2019): Changes in rainfall distribution promote woody foliage production in the Sahel. *Communications Biology*. doi:10.1038/s42003-019-0383-9
- Brandt, M., Rasmussen, K., Hiernaux, P., **Herrmann, S.**, Tucker, C.J., Tong, X., Tian, F., Mertz, O., Kergoat, L., Mbow, C., David, J., Melocik, K., Dendoncker, M., Vincke, C. and Fensholt, R. (2018): Reduction of tree cover in West African woodlands and promotion in semi-arid farmlands. *Nature Geoscience*. doi:10.1038/s41561-018-0092-x
- Tong, X., Brandt, M., Hiernaux, P., **Herrmann, S.M.**, Tian, F., Prishchepov, A. and Fensholt, R. (2017): Revisiting the coupling between NDVI trends and cropland changes in the Sahel drylands: A case study in western Niger. *Remote Sensing of Environment* 191, pp. 286-296. doi.org/10.1016/j.rse.2017.01.030
- **Herrmann, S.M.**, Didan, K., Barreto Munoz, A., Crimmins, M. (2016): Divergent responses of vegetation productivity in Southwestern US ecosystems to dry and wet years at different elevations. *Environmental Research Letters* 11, doi: 10.1088/1748-9326/11/12/124005
- **Herrmann, S.M.**, Sall, I., Sy, O. (2014): People and Pixels in the Sahel – a Study Linking Coarse-Resolution Remote Sensing Observations to Land Users' Perceptions of their Changing Environment in Senegal. *Ecology and Society* 19, doi: 10.5751/ES-06710-190329. [Awarded Best Paper of Ecology and Society of 2014]
- **Herrmann, S.M.**, Wickhorst, A.J. and Marsh, S.E. (2013): Estimation of Tree Cover in an Agricultural Parkland of Senegal Using Rule-Based Regression Tree Modeling. *Remote Sensing* 5, pp. 4900-4918. doi:10.3390/rs5104900
- **Herrmann, S.M.** and Tappan, G.G. (2013): Vegetation Impoverishment Despite Greening: A Case Study from Central Senegal. *Journal of Arid Environments* 90, pp. 55-66. doi.org/10.1016/j.jaridenv.2012.10.020
- **Herrmann, S.M.** and Mohr, K.I. (2011): A Continental-Scale Classification of Rainfall Seasonality Regimes in Africa Based on Gridded Precipitation and Land Surface Temperature Products. *Journal of Applied Meteorology and Climatology* 50, pp. 2504-2513. doi.org/10.1175/JAMC-D-11-024.1
- Propastin, P., Kappas, M.W., **Herrmann, S.M.** and Tucker, C.J. (2011): Modified light use efficiency model for assessment of carbon sequestration in grasslands of Kazakhstan: combining ground biomass data and remote-sensing. *International Journal of Remote Sensing* 33, pp. 1465-1487.

- Buenemann, M., Martius, C., Jones, J.W., **Herrmann, S.M.**, Klein, D., Mulligan, M., Reed, M.S., Winslow, M., Washington-Allen, R.A., Lal, R. and Ojima, D. (2011): Integrative geospatial approaches for monitoring and assessing the sustainability of land management: rationale, potentials, and characteristics. *Land Degradation and Development* 22, pp. 226-239. doi.org/10.1002/ldr.1074
- Van Leeuwen, W.J.D., Orr, B.J., Marsh, S.E. and **Herrmann, S.M.** (2006): Multi-Sensor NDVI Data Continuity: Uncertainties and Implications for Vegetation Monitoring. *Remote Sensing of Environment* 100, pp. 67-81. doi.org/10.1016/j.rse.2005.10.002
- **Herrmann, S.M.**, Anyamba, A. and Tucker, C.J. (2005): Recent Trends in Vegetation Dynamics in the African Sahel and their Relationship to Climate. *Global Environmental Change* 15, pp. 394-404. doi.org/10.1016/j.gloenvcha.2005.08.004
- **Herrmann, S.M.** and Hutchinson, C.F. (2005): The Changing Contexts of the Desertification Debate. *Journal of Arid Environments* 63, pp. 538-555. doi.org/10.1016/j.jaridenv.2005.03.003
- Hutchinson, C.F., **Herrmann, S.M.**, Maukonen, T. and Weber, J. (2005): Introduction: The “Greening” of the Sahel [Editorial]. *Journal of Arid Environments* 63, pp. 535-537. doi.org/10.1016/j.jaridenv.2005.03.002

Books:

- CILSS (Comité permanent Inter-Etats de Lutte contre la Sécheresse dans le Sahel) (2016): Landscapes of West Africa—A window on a changing world: Ouagadougou, Burkina Faso, CILSS, 219 p., doi.org/10.5066/F7N014QZ [**S. Herrmann** in the production and editorial team]
- Hutchinson, C.F. and **Herrmann, S.M.** (2007): The Future of Arid Lands – Revisited. A Review of 50 Years of Drylands Research. UNESCO Publishing/Springer, 238 pages.

Book Chapters:

- **Herrmann, S.M.** and Sop, T. (2016): “The Map is not the Territory. How Satellite Remote Sensing and Ground Evidence have (Re-)Shaped the Image of Sahelian Desertification” – in: Behnke, R. and Mortimore, M. (eds.) *The End of Desertification? Disputing Environmental Change in the Drylands*. Berlin, Heidelberg: Springer (Earth System Science Series), pp. 117-145.
- **Herrmann, S.M.** (2008): “Drought” – in: Darity, W.A. (ed.) (2008) *International Encyclopedia of the Social Sciences*, 2nd edition. 9vols. Detroit: Macmillan Reference
- **Herrmann, S.M.** and Glantz, M.H. (2007): “Desertification: Modern” – in: Middleton, J. and Miller, J.C. (eds.): *New Encyclopedia of Africa*, Second Edition. Farmington Hills, MI: Charles Scribner's Sons, Volume 2, pp. 59-63.

- **Herrmann, S.M.** (lead author) et al. (2006): “Chapter 6: Desert Outlook and Options for Action” – in: E. Ezcurra (ed.): Global Environmental Outlook for World Deserts. UNEP: Earthprint, pp.111-139.
- **Herrmann, S.M.** and Hutchinson, C.F. (2006): “The Scientific Basis: Linkages between Land Degradation, Drought and Desertification.” – in: Johnson, P.M., Mayrand, K. and Paquin, M. (eds.): Governing Global Desertification; Linking Environmental Degradation, Poverty and Participation. Aldershot: Ashgate, pp. 11-25.

Reports:

- **Herrmann, S.**, Limones, N., Chaves, P., Keane dos Santos, H., Wijnen, M., Serrat-Capdevila, A., Aguero, M. (2023) Using earth observations and local knowledge to understand agropastoralism dynamics in the South of Angola. Washington DC: The World Bank, 51 pages.
- P.H. Verburg, G. Metternicht, E. Aynekulu, X. Deng, K. Schulze, **S. Herrmann**, N. Barger, V. Boerger, F. Dosdogru, H. Gichenje, M. Kapović-Solomun, Z. Karim, R. Lal, A. Luise, B.S. Masuku, E. Nairesiae, N. Oettlé, A. Pilon, O. Raja, N.H. Ravindranath, R. Ristić and G. von Maltitz (2022): The Contribution of Integrated Land Use Planning and Integrated Landscape Management to Implementing Land Degradation Neutrality: Entry Points and Support Tools. A Report of the Science-Policy Interface. United Nations Convention to Combat Desertification (UNCCD), Bonn, Germany. 143 pages.
- Serrat Capdevila, A. and **Herrmann, S.M.** (2019): New Avenues for Remote Sensing Applications for Water Management. Washington DC: The World Bank, 47 pages.
- Serrat Capdevila, A. and **Herrmann, S.M.** (2018): Mainstreaming the Use of Remote Sensing Data and Applications in Operational Contexts. Washington DC: The World Bank, 72 pages.

Data Set:

- Tappan, G. G., Cushing, W.M., Cotillon, S.E., Mathis, M.L., Hutchinson, J.A., **Herrmann, S.M.**, and Dalsted, K.J., 2016, West Africa Land Use Land Cover Time Series: U.S. Geological Survey data release, <http://dx.doi.org/10.5066/F73N21JF>

ORAL PRESENTATIONS AND CONFERENCE PROCEEDINGS (selected)

- **Herrmann, S.**, Fensholt, R. and Brandt, M.: “Land Use/Land Cover Change and Persistence in West Africa and Associated Bioproductivity Trends”, Earth Observation Supporting Sustainability Research – 38th Annual EARSeL Symposium and 3rd joint EARSeL LULC& NASA LCLUC Workshop, Chania, Greece, July 12, 2018
- **Herrmann, S.** [invited]: “People and Pixels in the Sahel – Satellite and Ground Perspectives on the Desertification Debate”, School of Geography and Development Colloquium Series, University of Arizona, October 16, 2015
- **Herrmann, S.**, Baro, M. and Park, T. [invited]: “People and pixels in the Sahel – findings, challenges and lessons learned”, Annual Meeting of the Association of American Geographers, Los Angeles, April 11, 2013

- **Herrmann, S.** and Tappan, G.: “Vegetation Impoverishment Despite Greening? A Case Study from Senegal”, Global Land Project 2010 Open Science Meeting, Arizona State University, Phoenix, AZ, October 18, 2010
- **Herrmann, S.** [invited]: “Potential and challenges of using the NDVI for detecting land degradation and rehabilitation”, AGU Fall Meeting, San Francisco, December 15, 2009
- **Herrmann, S.** and Hopson, T.: “Integrating remotely-sensed vegetation phenology and rainfall metrics to characterize changes in dryland vegetation cover: example from Burkina Faso”, Drylands, Deserts & Desertification Conference, Sede Boqer Campus, Israel, December 14-17, 2008
- **Herrmann, S.M.** [invited]: “Variability of Sahelian rainfall and its impact on vegetation dynamics”, UCAR Management Committee Meeting, Boulder, CO, July 2007
- **Herrmann, S.M.:** “Land use decision making: the case of savannas”, Young Scientists Network Workshop on Incorporating Land Use Decision Making into the Earth System Model, Bristol, UK, June 2007
- Hutchinson, C.F., **Herrmann, S.M.** and Foerch, W.: “The Future of Drylands - Revisited”, International Scientific Conference on The Future of Drylands, Tunis, June 2006

RESEARCH EXPERIENCE

- **Collaborating Scientist**, “Quantifying critical fuel thresholds” (with USDA Forest Service Rocky Mountain Research Station, Oct. 2024 – Oct. 2026)
- **Co-Investigator**, “Mapping biocrust community composition and functional diversity across global drylands” (with P.I. Bill Smith, School of Natural Resources and the Environment, The University of Arizona, May 2024 – April 2027)
- **Collaborating Scientist**, “Biological soil crust ecology and function from space” (with USGS Western Geographic Science Center, Mar. 2023 – Sep. 2023)
- **Collaborating Scientist**, “Improving near-real-time detection and mapping of photosynthetically active buffelgrass to support invasive species control” (with USGS Western Geographic Science Center, Apr. 2021 – Mar. 2023)
- **Collaborating Scientist**, “Analysis of multi-temporal climate and land use/land cover data in the SW US” (with USGS Western Geographic Science Center, Apr. 2021 – Mar. 2022)

- **Collaborating Scientist**, “Vegetation Assessment of Phenology and Evapotranspiration Using Satellite Imagery in Western USA Riparian Zones” (with USGS Western Geographic Science Center, Oct. 2018 – May 2019)
 - Analyzed riparian vegetation phenology along the Lower Colorado River pre- and post-water release using multi-sensor Earth Observation time series data
- **Principal Investigator**, “Potential of Local Knowledge to Fill Data Gap for Scientific Understanding of Land Degradation” (Faculty Seed Grant, June 2016 – Dec. 2016)
 - Designed and implemented pilot project to develop evidence of Sahelian pastoralists’ traditional knowledge
 - Built collaborative relationship and worked with partner agency in Senegal
- **Collaborating Scientist**, “Land Cover Dynamics and Adapting to Climate Change in West Africa” (with USGS Earth Observation and Science (EROS) Center and USAID, Jan. 2011 – Dec. 2014)
 - Analysed and interpreted regional-scale land cover dynamics and trends, and identified local-scale hotspots of change
 - Designed and conducted capacity building workshops in image interpretation and analysis for environmental management professionals in West Africa
 - Developed content, wrote and edited sections of land cover change atlas (“Landscapes of West Africa—A Window on a Changing World”) as member of the production and editorial team
- **Collaborating Scientist**, “Mapping and Monitoring Land Resources, Land Uses, and Development Impacts in Ghana” (USGS Earth Observation and Science (EROS) Center and USAID, Sep. 2015 – Aug. 2016)
 - Supported USAID/Ghana’s Economic Growth Program with baseline geographic data and analyses for project planning, geographic targeting, measuring program impacts
- **Collaborating Scientist**, “Vegetation Indices from EOS Terra and Aqua MODIS” (Vegetation Index and Phenology Lab, Mar. – Nov. 2015)
 - Conducted data set comparison, error and sensitivity analysis of MODIS VI product collections 5 and 6
 - Led spatio-temporal characterization of vegetation cover and phenology in US Southwest
- **Principal Investigator**, “‘Desertification’ or ‘Greening’? Human-Environment Relationships in the Face of Climate Variability: Case Studies in Mauritania and Senegal” (NSF Research Grant, June 2008 – May 2013)
 - Led project to investigate contrasting claims of desertification and regreening in the Sahel
 - Designed and implemented (1) land cover change analyses using remote sensing, (2) field surveys on vegetation cover and species diversity, (3) interviews, focus group discussions and participatory activities
 - Devised novel methods to integrate and jointly analyze data from diverse data sources

- **Research Fellow**, Advanced Study Program (UCAR, Sep. 2006 – Sep. 2008)
 - Conducted independent research examining relationships between regional-scale vegetation phenological metrics and rainfall metrics
 - Conceived, wrote and submitted research proposals
 - Contributed to the UCAR Africa Initiative
- **Research Assistant**, “The Future of Arid Lands – Revisited” (Office of Arid Land Studies, Jan. 2004 – Aug. 2006)
 - Collected, reviewed and analysed background material for UNESCO-commissioned book reviewing 50 years of dryland research
 - Co-authored book with Dr. Chuck Hutchinson
- **Research Assistant**, “Changes in the Sahel” (Office of Arid Land Studies, Jan. 2003 – Dec. 2003)
 - Supported preparation of a joint UNEP/FAO/UNCCD Workshop on Changes in the African Sahel held in Nairobi
 - Developed content for and wrote background paper on the desertification debate
- **Research Assistant**, “RangeView” (Arizona Remote Sensing Center, Jan. – Dec. 2002)
 - Processed vegetation index data for implementing web-based geospatial tools for natural resource management
- **Student Research Assistant**, “Assessment of the Agricultural Potential of an Indigenous Water Harvesting System in Central Asian Deserts” (Jacob Blaustein Institute for Desert Research, Nov. 1999 – Oct. 2000)
 - Developed a methodology to identify and classify takyr soils according to their surface properties using Landsat TM and ETM+ images
 - Planned and carried out field work in Turkmenistan

TEACHING AND MENTORING EXPERIENCE

- **RNR696A: Remote Sensing of Coupled Human-Environment Systems (2018)**
 - Developed and co-taught graduate seminar
- **GEOG330: Introduction to Remote Sensing (2017)**
 - Redeveloped and taught introductory undergraduate class to 100+ students
- **Inter-University Collaboration with University of Freiburg, Germany (2012, 2015, 2018)**
 - Co-organized and accompanied the Tucson portion of a study tour of the U.S. Southwest by German geography graduate students
- **Capacity Building for USAID West Africa Project (2011 – 2014)**
 - Developed curriculum and teaching materials
 - Co-delivered onsite workshops on remote sensing-based land cover mapping and change detection for professionals from 15 West African countries

- **Mentorships**
 - Mentored undergraduate student from the Department of Geography and Development participating in NASA Space Grant Internship Program (Fall 2011- Spring 2012)
 - Supervised a Graduate Research Assistant in Arid Lands Resource Sciences (2011-2013)
 - Mentored visiting PhD student from the Universidade Federal da Bahia, Brazil (Oct 2022 – Mar 2023)

- **Guest Lecturer**
 - University of Arizona: Physical Aspects of Arid Lands; Natural and Human Impacts on Arid Lands
 - University of Maryland: Geography Graduate Seminar; Introduction to Remote Sensing
 - University of Colorado: Critical Thinking in Development; Meteorology and Climate

- **Teaching Assistantships (2004 – 2005)**
 - Introduction to Oceanography, Geosciences Department, University of Arizona
 - Sonora: A Description of Place in Arid America, School of Agriculture and Southwest Studies Center, University of Arizona

OTHER PROFESSIONAL ACTIVITIES

- **Associate Editor**, *Frontiers in Environmental Science*, Drylands Section, 2021 – 2023

- **External Consultant**, Supporting Climate Resilience and Water Security in Central Asia, The World Bank, February 2024 – present
 - Compile Implementation Completion Report for the Central Asia Water & Energy Program Phase 3 (CAWEP3)

- **External Consultant**, Land Use Planning and Management for Achieving Land Degradation Neutrality, United Nations Convention for Combatting Desertification (UNCCD), October 2020 – August 2021
 - Carry out background research on land use planning systems and their potential for supporting land degradation neutrality
 - Develop illustrative thematic examples of integrated land use planning and integrated landscape management to achieve land degradation neutrality
 - Draft a background paper and contribute to Technical Report of the Science Policy Interface

- **External Consultant**, Analysis of the Variability of Groundwater Withdrawals in the Oum-Er-Rbia Basin, Morocco, The World Bank, January – June 2021
 - Analyze fluctuations in irrigated areas in the Oum-Er-Rbia basin over two decades
 - Determine duration of occupancy or number of crops per year in the irrigated areas and their water requirements in support of estimating groundwater withdrawal to meet irrigation water demands

- **External Consultant**, Tajikistan Second Public Employment for Sustainable Agriculture and Water Resources Management Project (PAMP II) and Zarafshon Irrigation Rehabilitation and Management Improvement Project (ZIRMIP), The World Bank, June 2020 – June 2021
 - Conducted remote sensing assessment of expansion of actively irrigated area for project implementation and results evaluation

- **External Consultant**, Satellite Remote Sensing of Grasslands and Agricultural Lands in Southern Angola, The World Bank, May – June 2020, June – Dec 2022
 - Mapped and characterized spatio-temporal patterns of medium- and small-scale agricultural schemes and bioproductivity dynamics in the context of the 2012-2019 drought

- **Guest Editor**, *Remote Sensing*, Special Issue on “Earth Observations for Ecosystem Resilience”, Aug. 2019 – May 2020

- **External Consultant**, Assessment of Farmer-Led Irrigation to Maximize Finance for Development, The World Bank, Jan. – June 2019
 - Conducted study to assess the potential of multi-spectral and synthetic aperture radar remote sensing for mapping farmer-led irrigation in Rwanda

- **Associate Editor**, *Land Degradation and Development*, Remote Sensing and Emerging Technologies Section, 2018

- **Co-Chair**, Session on “Success Stories of How Remote Sensing is Serving Water Resources Management”. Fall Meeting of the American Geophysical Union. New Orleans, Dec.11-15, 2017

- **External/Internal Consultant**, Global Initiative Remote Sensing for Water Resources Management, The World Bank, Jan. 2017 – June 2019
 - Delivered technical and logistical support to the World Bank’s Water Expert Team
 - Provided guidance to technical consultants carrying out case studies aimed at mainstreaming the use of earth observation data and applications in water resource management
 - Synthesized key messages from case studies into progress reports, knowledge briefs, and slide decks

- **Member of Science Advisory Committee** for Global Environment Facility (GEF)-funded Land Degradation Monitoring project, Oct 2016 – Dec 2017
- **Co-Chair**, Session on “Including Land Use and Land Cover Change in Earth System Models“. Fall Meeting of the American Geophysical Union. San Francisco, Dec.12-15, 2007
- **Co-Guest Editor**, *Journal of Arid Environments*, Special Issue on “The ‘Greening’ of the Sahel” (Volume 63, Issue 3, Nov. 2005)
- **Reviewer**: Journal Manuscripts: *Agriculture, Ecosystems and Environment*; *Ambio*; *Arid Lands Research and Management*; *British Journal for Applied Science and Technology*; *Ecological Applications*; *Ecology and Society*; *Environmental Monitoring and Assessment*; *Frontiers in Environmental Science*; *Geoinformatics and Geostatistics*; *Global and Planetary Change*; *Global Change Biology*; *Global Environmental Change*; *Journal of Applied Meteorology and Climatology*; *Journal of Arid Environments*; *Land Degradation and Development*; *Remote Sensing*; *Remote Sensing of the Environment*; *Research in Economic Anthropology*; *Science of the Total Environment*; *Singapore Journal of Tropical Geography*
Grant Proposals: CRDF Global; The National Science Foundation; Natural Environment Research Council (UK)

FUNDING RECEIVED

- **National Aeronautics and Space Administration (NASA)**, Earth Surface Mineral Dust Source Investigation (EMIT) Science and Applications Team (co-I with PI Bill Smith), May 2024 – April 2027, US\$559,338
- **USGS Western Geographic Science Center**, CESU Cooperative Agreement (PI), Apr. 2021 – Sep. 2023, US\$142,767
- **Office of the Vice President for Research, The University of Arizona**, Faculty Seed Grant (PI), June 2016 – Dec. 2016, US\$10,000
- **USGS Earth Observation and Science (EROS) Center**, CESU Cooperative Agreement (PI), Sep. 2015 – Aug. 2016, US\$80,716
- **USGS Earth Observation and Science (EROS) Center**, Intergovernmental Personnel Act (IPA) assignment (PI), Dec. 2011 – Dec. 2014, US\$350,000
- **National Science Foundation, Geography and Regional Science Program**, Research Grant (PI, with co-Is Tad Park, Mamadou Baro, Randy Gimblett), June 2008 – Dec. 2010, US\$400,000
- **University Corporation for Atmospheric Research**, Advanced Study Program fellowship at the National Center for Atmospheric Research, Sep. 2006 – Sep. 2008

PROFESSIONAL SOCIETIES

- American Geophysical Union (AGU)
- Association of American Geographers (AAG)

PROFESSIONAL DEVELOPMENT

- Training and workshop series: Leadership; Facilitation Bootcamp; Instruction and Assessment (learner-centered teaching); Diversity and Inclusion; Grant Writing; Editing in Professional Contexts

LANGUAGES AND SKILLS

- Languages: German (native), English (fluent), French (fluent)
- Operating systems: Windows (advanced), Linux (intermediate)
- Software packages: ArcMap (advanced), QGIS (novice), ENVI (advanced), MS Office Suite (advanced)
- Scientific programming languages: IDL (advanced), R (novice), C# (novice), Java (novice – intermediate), Python (novice)
- Cloud computing platforms: Google Earth Engine (intermediate-advanced)