Marguerite Madden, Abbreviated CV

POSITION: Professor, Director Emeritus and Associate Director for Education and Outreach
Center for Geospatial Research (CGR),
Department of Geography, The University of Georgia
Tel: 706-542-2358 Office; 706-340-7945 Cell; 706-542-2388 Fax
Email: mmadden@uga.edu, Web: www.cgr.uga.edu

EDUCATION:

B.A.	1979	State University of New York, Plattsburgh	Biology
M.A.	1984	State University of New York, Plattsburgh	Biology
Ph.D.	1990	The University of Georgia, Athens	Ecology

EMPLOYMENT HISTORY:

1981-1982	National Wetlands Inventory Analyst, State Univ. of New York
1985-1990	Graduate Research Assistant, CRMS, Geography Dept., Univ. of Georgia
1990-2005	Research Scientist, CRMS, Geography Dept., Univ. of Georgia
2005-2008	Associate Professor and Director, CRMS, Geography Dept., Univ. of Georgia
2008-2024	Professor and Director, CRMS/CGR, Geography Dept., Univ. of Georgia
2024-Present	Professor and Associate Director for Education and Outreach, CRMS/CGR, Geography Dept., Univ. of Georgia

RESEARCH INTERESTS: GIScience, including remote sensing, geographic information systems (GIS), and spatio-temporal analysis, as applied to landscape-scale biological/physical processes and human-animal-environment interactions.

MAJOR ADVISOR FOR POST DOCS/STUDENTS: Since appointed faculty in 2005, 12 Postdoctoral Researchers, 24 Ph.D., 22 MS/MA. Currently major advisor for 3 Ph.D. and 3 MS students.

SELECTED HONORS AND PROFESSIONAL SERVICE:

Member, Geographical and Geospatial Sciences Committee, National Academies of Sciences, Engineering and Medicine (2021-2025)

American Association of Geographers (AAG) Remote Sensing Specialty Group, Outstanding Contributions Award in Remote Sensing (2021)

Fellow Award, International Society for Photogrammetry and Remote Sensing (2020)

Lifetime Achievement Award by American Society for Photogrammetry and Remote Sensing, "for distinction in photogrammetry, remote sensing or the related sciences" (2020)

NASA Silver Achievement Medal by National Aeronautics and Space Administration, "for excellence in developing future scientific leaders in the use of NASA's Earth Science data to enhance decision making for societal benefit" (2018)

International Society for Photogrammetry and Remote Sensing (ISPRS), Chair, Working Group IV/6, SDI: Internet of Things and Spatial Decision Support (2016-2020)

International Society for Photogrammetry and Remote Sensing (ISPRS), The ISPRS Foundation Chief-Financial-Officer and Executive Board Member (2011-2020)

International Society for Photogrammetry and Remote Sensing (ISPRS), Council 2nd Vice President (2012-2016)

Special Achievements in Geographic Information Science (SIG) Awards received by the Center for Geospatial Research (CGR), ESRI, Inc. (2009 and 2015).

International Society for Remote Sensing and Mapping Science (ISPRS), Technical Commission IV, President, Geodatabases and Digital Mapping (2008-2012)

American Society for Photogrammetry and Remote Sensing, Conference Management Award (2014), SAIC Estes Memorial Teaching Award (2011), Presidential Citations (2011, 2009, 2005), Outstanding Service Award (2010), Fellow Award (2010), Col. Claude H. Birdseye President's Citation (2008)

American Society for Photogrammetry and Remote Sensing, Vice-President, President-Elect, President and Past-President (2005-2009)

International Society for Photogrammetry and Remote Sensing (ISPRS) Willem Schemerhorn Award by The Netherlands Society for Earth Observation and Geo-Informatics (2004)

CURRENT RESEARCH GRANTS:

U.S. Army Corps of Engineers, 2023-2028. Evaluating Physical, Chemical and Biological Impacts from the Savannah Harbor Expansion Project, (Co-PI with PI S. Bernardes), $800,636, FY24 $150,867 (Total $1,384,758 2013-2022).

University of Georgia Learning Technologies Grant, 2023-2024. Education for the Digital Age: Creating Experiential Learning Opportunities at the Intersection Between Drones, Remote Sensing, Augmented/Virtual Reality and Artificial Intelligence. Co-PI with Sergio Bernardes (PI) and Allison Howard (Co-PI), $24,873. (Total $115,327, 2016-2024).

U.S. Department of Agriculture-Agricultural Research Station, Southeast Watershed Research Lab, 2022-2025, AI Innovations for UAS-based biomass estimation and regional extrapolations in the Gulf Atlantic Coastal Plain. (Co-PI with Lynne Seymour PI), $380,655.

U.S. Department of Agriculture (USDA) Forest Service, 06/01/2021-06/30/2025. Socioecological Vulnerability of Native American Allotments and Cocoa Farms in Ghana, PI with Cassandra Johnson Gaither, $94,999.35.

University of Georgia Learning Technologies Grant, 2022-2023. Integrating multiple technologies into immersive, experiential and inclusive solutions for teaching and learning in the geosciences and other fields. Co-PI with Sergio Bernardes (PI) and Allison Howard, $24,973. (Total $90,454, 2016-2023).

University of Georgia Learning Technologies Grant, 2020-2021. Innovative Technologies in Teaching and Learning: Incorporating Recent Developments in Augmented Reality into Active Learning at UGA. Co-PI with Sergio Bernardes (PI) and Allison Howard, $24,258.

U.S. Army Corps of Engineers, 2020-2023. Evaluating Physical, Chemical and Biological Impacts from the Savannah Harbor Expansion Project, (Co-PI with PI S. Bernardes), FY20 $131,846, FY21 $137,632, FY22 $143,080, FY23 $146,545.30 (Total $683,820.95).

U.S. Department of Agriculture-Agricultural Research Station, Southeast Watershed Research Lab, 2017-2021, Geospatial Modeling of Agroecological Systems and Dynamics in the Gulf Atlantic Coastal Plain LTAR Site. (PI), $140,413.

Wormsloe Institute for Environmental History and Wormsloe Foundation, 2015-2021. Geospatial Data Collection and Analysis using UAS and Photogrammetry, (PI) $26,145.

National Aeronautics and Space Administration, July 1, 2019-June 30, 2024. Cooperative Institute for Satellite Earth Systems Studies (CISESS), National consortium of 16 academic and 4 nonprofit institutions with leadership from the University of Maryland College Park and North Carolina State University, Co-PI with Fernando Miralles-Wilhelm (UMD-PI) and UGA Co-PIs J. Marshall Shepherd, Thomas Mote, John Knox, Alan Flurry, Karri Hobson-Pape, Gabe Kooperman, Amanda Frossard, Renato Castelao and David Cotten, Total 5-year grant $175,000,000.

U.S. Army Corps of Engineers, 2018-2020. Evaluating Physical, Chemical and Biological Impacts from the Savannah Harbor Expansion Project, (Co-PI with PI S. Bernardes) $381,410.

U.S. Department of Agriculture (USDA) Forest Service, 2016-2020. Spatial Analysis of Social Science Indicators for National Forest Management, PI with Cassandra Johnson Gaither (Co-PI), $100,000.

U.S. Air Force Research Laboratory (AFRL)-University Nanosatellite Program (UNP), Phase B: Multi-view On Board Computational Imager (MOCI), Co-PI with PI David Cotten and Co-PIs Malcom Adams, R. Benjamin Davis, Jenna Jambeck, Deepak Mishra, Thomas Mote, Ramana Pidaparti, J. Marshall Shepherd and Suzanne Ullrich, $755,986.

SELECTED EDITORIAL ACTIVTIES:

Madden, M., Alisa Coffin and Rosanna Rivero, (Guest Eds.), 2023-2024. Women's Special Issue Series: *Remote Sensing*. *In progress*, deadline for submissions 31 December 2024, 3 Articles published, Brumberg et al. (2024) 16(6): 1088, Gessner et al. (2023) 15(22): 5428. Zhao et al. (2024).

Madden, M. and M.N.K. Boulos, (Guest Eds), 2023-2024. Recent Advantages in Geospatial Techniques for Monitoring and Mitigating Climate Change Effects on Human Health, *International Journal of Health Geographics*, 4 articles published, Kost et al. (2023) 22:38-50, Uelmen et al. (2023) 22:28-37, Gilardi et al. (2023) 22:11-25, Boulos and Wilson (2023) 22:2-9.

Haworth, J., S. Dragicevic, M. Wang*, H. Huang and M. Madden (Guest Eds.), 2019-2021. Deep Learning and Computer Vision for GeoInformation Sciences, *ISPRS Journal of Geo-Information*, 24 articles published XX 2019-January 2021, 8(6):259-274, 8(8):366-390, 8(9):369-373, 8(9):390-404, 8(9):393-415, 8(9):417-439, 8(10):433-448, 8(12):549-567, 9(1):18-39, 9(1):24-40, 9(1):57-69, 9(2):81-103, 9(3):182-201, 9(4):187-203, 9(4):264-28, 10(7):488-511, 10(8):551-572, 10(9):591-615, 10(12):828-843, 11(1):9-28, 11(1):43-62, 11(2):102-124, 11(2):131-148.

Musakwa, W., F. Ujoh, M. Madden and A. Van Niekerk (Guest Eds.), 2021. Application of Geospatial Science in Disaster Mitigation and Conflict Resolution in Africa, *Geo-Spatial Information Science (GSIS)*, Announced September 2019 for publication in 2021, *No submissions.*

Madden, M., M. Wang, D. Raj Paudyal and G. Vacca (Guest Eds.), 2019-2020. Integrating GIS and Internet of Things (IoT) in Sustainable Cities, *ISPRS Journal of Geo-Information*, Announced, September 2019 for publication in 2020. *No submissions*. https://www.mdpi.com/journal/ijgi/special_issues/

Madden, M. (Ed.) 2009. *The Manual of Geographic Information Systems*, American Society for Photogrammetry and Remote Sensing, Bethesda, Maryland, 62 chapters, 1330 p.

Associate Editor, *ISPRS Journal of Photogrammetry and Remote Sensing* (2004-2005)

Associate Editor for *Wetlands*, Journal of the Society of Wetlands Scientists (1997 - 2000)

Member, Editorial Boards, *ISPRS International Journal of Geo-Information*, *Geo-Spatial Information Science, International Journal of Health Geographics*, *Journal of the Indian Society of Remote Sensing, Geosfera Indonesia.*

SELECTED PUBLICATIONS: (from +98 under Madden and Remillard, *Advisees noted with *)*

Shannon, J., K. Weber, A. Stich, A. Aragon* and M. Madden, 2024. Mapping local suitability for STEM work-related experienctial opportunities in Georgia, *Applied Geography*, 171, https://doi.org/10.1016/j.apgeog.2024.103370

Zhao, J., R. Rivero and M. Madden, 2024. Measuring urban and landscape change under the impact of sea level rise: Application in Southeastern USA, Special Issue – Women in Remote Sensing Series *Remote Sensing,* 16:2105-2128. https://doi.org/10.3390/rs16122105

Yao, A., M. Madden, A. Buckley, E. Delmelle and G. Sinha, 2024. Bringing ethics to cartography and geographic information science: AutoCarto 2022, *Cartography and Geographic Information Science*, 51(4): 487-491. https://doi.org/10.1080/15230406.2024.2352534

Brumberg, H., S. Furey, M. Bouffard, M.J. Mata Quiros, H. Murayama, S. Neyestani, E.L. Pauline, A. Whitworth and M. Madden, 2024. Increasing forest cover and connectivity both inside and outside of protected areas in southwestern Costa Rica, *Remote Sensing,* Special Issue – Women in Remote Sensing Series*,* 16(6), 1088-1117. https://doi.org/10.3390/rs16061088

Tian, Y., X. Yao, M. Madden and A. Grundstein, 2023. Synergic effects of meteorological factors on urban form-outdoor exercise relationship: A study with crowdsourced data, *Journal of Geographical Systems*, https://doi.org/10.1007/s10109-023-00424-x

Bacchus, S., S. Bernardes* and M. Madden, 2023. Implications of declining ground water and water quality in the US Southeastern Coastal Plain Ecoregion and areawide environmental impact statement required for mining in the Greater Okefenokee Swamp Basin, *Journal of Geoscience and Environment Protection*, 11(3):201-276. https://doi.org/10.4236/gep.2023.113014

Markham*, K., A.E. Frazier, K.K. Singh and M. Madden, 2023. A review of methods for scaling remotely sensed data for spatial pattern analysis, *Landscape Ecology*, 38:619-635. https://doi.org/10.1007/s10980-022-01449-1

Langbauer, W.R. Jr., M. Karidozo, M. Madden, R. Parry, S. Koehler, J. Fillebrown, T. Wehlan, F. Osborn and A. Presotto, 2021. From elephant memory to conservation action: using chili oil to mitigate conflict one elephant at a time, *Animal Conservation*, 2 p.

https://zslpublications.onlinelibrary.wiley.com/doi/epdf/10.1111/acv.12747
Bernardes*, S. and M. Madden, Chapter Eds., 2020. Image Processing and Analysis Methods, Chapter 7, 210 pages *In,* Morain, S., A. Budge and M. Renslow (Eds.) *Manual of Remote Sensing*, 4th Edition, 12 Chapters, American Society for Photogrammetry and Remote Sensing, Bethesda, Maryland, published online: 631-868. (Invited). https://my.asprs.org/ASPRSMember/Publications/mrs4.aspx
Bernardes*, S., M. Madden, A. Walker, A. Knight*, N. Neel, A. Mendki, D. Bhanderi, A. Guest, S. Healy* and T. Jordan, 2020. Emerging geospatial technologies in environmental research, education and outreach. *Geosfera Indonesia*, 5(3):352-363. https://jurnal.unej.ac.id/index.php/GEOSI/article/view/20719/9100
Mertzlufft, C.*, M. Madden, N. Gottdenker, J. Velasquez Runk, A. Saldana, S. Tanner, J. Calzada and X. Yao, Landscape disturbance impacts on *Attalea butyracea* palm distribution in central Panama: Implications for Chagas disease transmission, *International Journal of Health Geographics,* 19(58): 17 p. https://doi.org/10.1186/s12942-020-00244-y
Johnson Gaither, C., A. Aragon*, M. Madden, S. Alford, A. Wynn and M.R. Emery, 2020. "Black Folks Do Forage": Examining wild foods gathering in Southeast Atlanta Communities, *Urban Forestry & Urban Greening*, 56: 10 p., https://doi.org/10.1016/j.ufug.2020.126860
Çöltekin, A., I. Lochhead, M. Madden, S. Christophe, A. Devaux, A., C. Pettit, O. Lock, S. Shukla, L. Herman, Z. Stachoň, P. Kubíček, D. Snopkova, S. Bernardes and N. Hedley, 2020. Extended reality in spatial sciences: A review of research challenges and future directions, Invited Paper in, Li, S., S. Zlatanova, M.A. Brovelli and M. Sester (Eds.) Special Issue, State-of-the-Art in Spatial Information Science, *ISPRS International Journal of Geo-Information*, 9(439): 29 p, https://doi.org/10.3390/ijgi9070439
Presotto, A.*, C. Remillard*, N. Spagnoletti, R. Salmi, M. Verderane, K. Stafford, R. Rodrigues dos Santos, M. Madden, D. Fragaszy, E. Visalberghi, P. Izar, 2020. Rare bearded capuchin (*Sapajus libidinosus*) tool-use culture is threatened by land use changes in northeastern Brazil, *International Journal of Primatology*, 41:596-613. doi: 10.1007/s10764-020-00166-3 https://link.springer.com/article/10.1007/s10764-020-00166-3
Bernardes*, S., and M. Madden, 2020. Characterization of Canopy Anisotropies over a Forested Area using a Multispectral Imager Integrated into an Unmanned Aerial System: the Droniometer Experiment. *Earth and Space Science Open Archive*. DOI:10.1002/essoar.10502014.1
Bernardes*, S., A. Howard*, A. Mendki, A. Walker, D. Bhanderi, L. Le, A. Tsao and M. Madden, 2020. Innovative Technologies in Teaching and Learning: Incorporating Recent Developments in Virtual and Augmented Reality into Active Learning at the University of Georgia. *Earth and Space Science Open Archive*. doi:10.1002/essoar.10502013.1
Madden, M., T. Jordan, S. Bernardes*, C. Goetcheus, K. Olson and D. Cotten, 2019. Small Unmanned Aerial Systems (sUAS) and Structure from Motion (SfM) for Identifying, Documenting and Monitoring Cultural and Natural Resources, In, J.B. Sharma (Ed), *Applications of Small Unmanned Aircraft Systems: Best Practices and Case Studies*, CRC Press Taylor & Francis Group, Boca Raton, 179-209.
Aragon, A.*, C. Johnson Gaither, M. Madden and S. Goodrick, 2019. The "Efficiency Concern": Exploring wildfire risk on Heir's Property in Macon-Bibb County, Georgia, United States of America, *Human Ecology Review*, 25(2): 51-68. doi: 10.22459/HER.25.02.2019.05
Bernardes*, S., L. Manglass*, S.T. Bacchus* and M. Madden, 2019. Analysis and extent of Santa Fe River flooding in North Florida attributed to rainfall and wind damage associate with Hurricane Irma, *Journal of Geosciences and Environmental Protection*, 7:253-279. doi: 10.4236/gep.2019.711019
Presotto*, A., R. Fayrer-Hosken, C. Curry and M. Madden, 2019. Spatial mapping shows that some African Elephants use cognitive maps to navigate the core but not the periphery of their home ranges, *Animal Cognition*, 22(2): 251-263. https://doi.org/10.1007/s10071-019-01242-9
Singh, K.K., J. Gray, M. Madden and R.K. Meentemeyer. 2018. The managed clearing: An overlooked landcover type in urbanizing regions? *PLOS ONE*, 13(2) https://doi.org/10.1371/journal.pone.0192822

Xu, W.*, S. Bernardes*, S. Bacchus*and M. Madden. 2018. Management of panther habitat should consider influence of aquifer fractures on ecosystem and habitat suitability for panther dens. *J. of Geoscience and Environmental Protection,* 6:184-208. Madden, M., T. Jordan, **S**. Bernardes, D.

Cotten, N. O'Hare and A. Pasqua, 2015. Unmanned Aerial Systems (UAS) and Structure from Motion (SfM) Revolutionize Wetlands Mapping, Invited Chapter 10, In, R. Tiner, M. Lang and V. Klemas (Eds), *Remote Sensing of Wetlands*: *Applications and Advances*, CRC Press Taylor & Francis Group, Boca Raton, Florida*,* 10: 195-222.

Madden, M**.**, T. Jordan, M. Kim, H. Allen and B. Xu, 2009. Integrating remote sensing and GIS: From overlays to GEOBIA and geo-visualization, In, M. Madden (Ed-in-Chief), *The Manual of Geographic Information Systems*, American Society for Photogrammetry and Remote Sensing, Maryland, 701-720.

Madden, M**.**, 2004. Remote sensing and GIS methodologies for vegetation mapping of invasive exotics, (Invited Paper), *Weed Technology*, 18:1457-1463.

Madden, M**.,** D. Jones and L. Vilchek, 1999. Photointerpretation key for the Everglades Vegetation Classification System, *Photogrammetric Engineering and Remote Sensing*, 65(2): 171-177.

Welch, R., M. Madden and R. Doren, 1999. Mapping the Everglades, *Photogrammetric Engineering and Remote Sensing*, 65(2): 163-170.

Remillard, M. and R. Welch. 1993. GIS technologies for aquatic macrophyte studies: II Modeling applications. *Landscape Ecology*, 8(3): 163-175.

Remillard, M. and R. Welch. 1992. GIS technologies for aquatic macrophyte studies: I. Database development and changes in the aquatic environment. *Landscape Ecology*, 7(3): 151-162.

Welch, R., M. Remillard and J. Alberts, 1992. Integration of GPS, remote sensing and GIS techniques for coastal resource management. *Photogrammetric Engineering and Remote Sensing*, 58(11): 1571-1578.

Welch, R., M. Remillard and R. Slack. 1988. Remote sensing and geographic information system techniques for aquatic resource evaluation. *Photogrammetric Engineering and Remote Sensing*, 54(2): 177-185.

Bogucki, D.J., G.K. Gruendling and M. Madden. 1980. Remote sensing to monitor water chestnut growth in Lake Champlain. *J. of Soil and Water Conservation*. 35(2): 79-81.