

RAJEE TAMRAKAR

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EDUCATION

Stony Brook University, Stony Brook, New York **2025 – Present**
PhD., Marine, Atmospheric, and Sustainability Sciences

Southern Illinois University (SIU), Carbondale, Illinois **2025**
Master of Science (M.S.) in Geography and Environmental Resources (GPA: 4.00/4.00)
Thesis: Exploring Managed Retreat as an Adaptation Strategy to Riverine Flooding: Insights from Valmeyer and Olive Branch, Illinois

Kathmandu University, Bagmati, Nepal **2020**
Bachelor of Science in Environmental Science (GPA: 3.36/4.00)
Thesis: Flood Risk Assessment of Hanumante River, Bhaktapur, Nepal

PROFESSIONAL EXPERIENCE

Graduate Research Assistant **October 2025 - Present**
Disaster and Housing Lab, Stony Brook University (PI: Dr. Sara Hamideh)

- Conducting mixed-methods research on disaster recovery, managed retreat, flood risk, and climate adaptation, integrating qualitative coding, literature synthesis, and quantitative analysis.
- Analyzing post-disaster recovery data, including crowdfunding campaigns, socioeconomic indicators, insurance and federal aid references, and community recovery outcomes following major flood and hurricane events.

Graduate Teaching Assistant **August 2025 - Present**
School of Marine and Atmospheric Sciences, Stony Brook University

- Assist in instruction for “Introduction to Sustainability” and “Prospect for Earth System”, supporting 120 student learning in key concepts of environmental science, climate change, sustainability, and Earth systems.
- Grade assignments and exams with detailed feedback to promote student understanding and academic growth.

Graduate Teaching Assistant **August 2023 - August 2025**
Department of Geography and Environmental Resources, SIU Carbondale

- Leading and teaching lab sections for “Weather, Climate and Society” and “Introduction to GIS” every week for 40 students and grading the lab assessments and lecture assignments.
- Assisting the senior lecturer, communicating with the students, and reviewing and updating the syllabus, lab assessments, and worksheets to ensure alignment with current developments and enhance educational outcomes.

Sustainability Fall Fellow **November 2024 - January 2025**
SIU Sustainability Hub, SIU Carbondale

- Independently developing an ArcGIS Story Map to document campus bike ramps and bike fix-it stations, to enhance accessibility to sustainable commuting resources.
- Conducting proximity analysis to assess distances between major campus facilities and commuting resources.

Graduate Summer Research Assistant **May 2024 - August 2024**
Remo Lab, SIU Carbondale (PI: Dr. Jonathan W.F. Remo)

- Conducted comprehensive literature reviews on non-structural flood mitigation strategy, focusing its application on Levee Protected communities in the Midwest USA.
- Identified key socio-economic and environmental variables to assess the success factors of managed retreat strategies based on census data for two towns that underwent managed retreat strategies.
- Explored household assessor data for Monroe County (Valmeyer) and Alexander County (Olive Branch) to assess the economic impact of voluntary buyout and wholesale relocation.

Research and Program Associate **September 2021 - July 2023**
NAXA Pvt. Ltd., Kathmandu, Nepal

- Developed and managed comprehensive technical proposals, progress reports, and final reports for grant applications in collaboration with prominent nonprofit, non-governmental, and international organizations.
- Spearheaded the coordination and advancement of the Digital and Spatial Tool for Anticipatory Action (DASTAA), focusing on proactive multi-hazard risk assessment.
- Conducted in-depth research and analysis to assess social vulnerability factors, resulting in the identification of key indicators for a comprehensive social vulnerability index and created metrics for multi-hazard risk assessment.

- Designed and digitized survey questionnaires to facilitate household-level risk assessment, enabling evidence-based decision-making for effective risk financing strategies.
- Engaged and empowered local youths in a citizen science initiative to collect household data on vulnerabilities, enhancing community resilience and disaster risk reduction.

Research and Project Assistant

May 2021 - September 2021

Institute of Himalayan Risk Reduction, Kathmandu, Nepal

- Contributed to the drafting and enhancement of grant proposals and reports, resulting in the successful implementation of local disaster and climate resilience plans and vulnerability capacity assessments for two Nepali rural municipalities
- Prepared framework and conducted a webinar on “Blue-Green Infrastructure for the Sustainable Urban Ecosystem” on World Environment Day 2021, fostering sustainable urban development practices.
- Assisted as GIS instructor for "Basics of Mapping and Spatial Analysis in Disaster Preparedness and Response using ArcMap 10.8," concurrently creating a step-by-step training manual.
- Used orthophoto images to identify, digitize, analyze, and document Humanitarian Open Spaces and blue infrastructures in Changuarayan Municipality using ArcGIS and OSM.

SKILLS

Technical: Microsoft Office Suite, ArcGIS Pro, ArcGIS Storymaps, ArcGIS Fieldmap, QGIS, Kobo toolkit, HEC-RAS, ERDAS, Python, Google Earth Engine, R-Programming, Stata, Atlas.ti, NVivo, Dedoose

Professional: Quantitative reasoning, Qualitative Analysis, data analytics, reviewing and validating technical documents, leadership, technical communication skills, project planning, and team management

Language: English (Fluent), Nepali (Native), Hindi (Fluent), Spanish (Beginner)

PUBLICATIONS (Note: * In Progress)

- **Tamrakar, R.**, and Remo, J. (2025). Quantifying the Costs and Benefits of Managed Retreat: Insights from Valmeyer’s Gains and Olive Branch’s Losses. *International Journal of Disaster Risk Reduction* (Under Review)
- Silwal, A., Subedi, A., **Tamrakar, R.**, Dahal, K., Dahal, D., Ekpeter, K. O., and Zhran, M. (2026). A Comprehensive Review of Machine Learning and Deep Learning Methods for Flood Inundation Mapping. *Earth*, 7(2), 44.
- Dahal, K., Talchabhadel, R., Pradhan, P., Parajuli, S., Shrestha, D., Chhetri, R., Gautam, A. P., **Tamrakar, R.**, Gurung, S., and Kumar, S. (2025). Nepal’s carbon stock and biodiversity are under threat from climate exacerbated forest fires. *Information Geography*, 1(1), Article 100003. <https://doi.org/10.1016/j.infgeo.2025.100003>

CONFERENCE PRESENTATIONS (Note: * In Progress)

Oral Presentation

- **Tamrakar, R.** (2026). Understanding Managed Retreat in two Levee Protected Communities. NHERI Graduate Student Council Research Highlights on Natural Hazards 2026
- **Tamrakar, R.**, and Remo, J. (2025). Quantifying the Costs and Benefits of Managed Retreat: Insights from Valmeyer’s Gains and Greater Olive Branch’s Losses. American Association of Geographers (AAG) Meeting 2025
- **Tamrakar, R.**, Shakya, S., and Kayastha, R.B. (2021) Flood Risk Assessment of Hanumante River, Bhaktapur using GIS and HECRAS. Himalayan Knowledge Conclave 2021.

Poster Presentation

- **Tamrakar, R.**, and Remo, J. (2024). Understanding Managed Retreat as a Viable Adaptation Strategy to Riverine Flooding. American Geophysical Union Meeting (AGU) 2024, Washington, DC.
- Remo, J., Samberg, S.S., Brooks, M.L., Giri, T.L., **Tamrakar, R.**, Hamilton-Brehm, S.D., and Lefticariu, L. (2024). Towards landscape scale modeling of large river-floodplain services: Insights from the reconnected Dogtooth Bend floodplain of the middle Mississippi River. American Geophysical Union Meeting 2024, Washington, DC.
- Pudasaini, U., Oli, U., Sharma, S., **Tamrakar, R.**, & Manandhar, S. (2023). Drones and Web GIS-based Street Naming and Household Addressing System: A case of Changuarayan-An Urbanizing Municipality from Kathmandu, Nepal. FIG Meeting, Digital Transformation for Responsible Land Administration, Netherlands.

RECOGNITION AND AWARDS

- **David G. Arey Memorial Award 2026, SIU Carbondale** 2026
Awarded every year for the thesis best representing creative problem solving in the natural resources and environmental field.
- **Travel support** to attend the 51st Annual Natural Hazards Research and Applications Workshop provided through NSF Award #1841338, NHERI-CONVERGE (PI: Dr. Lori Peek) 2026
- **NSF CHEER Hub Summer Scholar** 2026

National Science Foundation Coastal Hazards Economic Prosperity and Resilience Hub	
• Student Conference Travel Support Grants Sustainability Studies Program, Stony Brook University	2026
• Maze-Landean Fellowship School of Marine and Atmospheric Science, Stony Brook University	2025
• School of Marine and Atmospheric Sciences Dean's Scholarship and Full Tuition Scholarship School of Marine and Atmospheric Sciences, Stony Brook University	2025
• NSF NHERI GSC Leadership Conference Funding National Science Foundation Natural Hazards Engineering Research Infrastructure (NHERI) support to attend the 50th Annual Natural Hazards Research and Applications Workshop	2025
• Sustainability Environmental Ambassador Award Office of Sustainability, SIU Carbondale	2025
• American Association of Geographers (AAG) Student Travel Grants Award 2025 Awarded as one of 31 recipients from a large pool of applicants	2024
• Graduate School Professional Development Fund Travel Grants 2024, SIU Carbondale	2024
• Dr. Benedykt Dziegielewski Scholarship Award 2024, SIU Carbondale Outstanding research proposal for graduate research at the GENV annual award reception 2024	2024 – 2025
• Himalayan University Consortium Fellowship Fellowship grant to co-organize and present at the Understanding Risk Himalayan Climate Data Field Lab	
• Geography Development Fund Travel Award School of Earth System and Sustainability, SIU Carbondale	2024
• Departmental Graduate Assistantship and Full Tuition Scholarship Department of Geography and Environmental Resources, SIU Carbondale	2023 - 2025
• 2023 Fellow for Risk and Resilience DAT/Artathon Workshop	2023

TRAINING AND WORKSHOPS

• Understanding Risk Himalayan Climate Data Field lab in Kathmandu, Nepal	2024
• <u>MOOC</u> on Cartography offered by ESRI	2024
• Risk and Resilience DAT/Artathon Workshop	2023
• <u>Online training</u> on Empowering women in geospatial information technology	2022
• Week-long Remote mapping Kakamega, Kenya for transportation needs assessment using OSM for spatial planning to enhance mobility access of rural communities.	2022
• <u>MOOC</u> on Nature-based solutions for disaster and climate resilience	2022
• <u>MOOC</u> on Geospatial Application for Disaster Risk Management by IIRS and UNOOSA	2021
• <u>Online training</u> on Women in STEM: Application of open access tools for water resource management	2021
• <u>Online training</u> on Climate change and resilience building	2020

LEADERSHIP, ENGAGEMENT, AND SERVICE

• Chair of Community Engagement, NSF NHERI GSC – Moderator and Co-organizer for the 2026 NSF NHERI Mini Conference – Co-Organizer for NSF NHERI Data Challenge 2026 – Organizer and Moderator for NSF NHERI Graduate Student Council Research Highlights on Natural Hazards 2026	2026
• Vice Chair of Community Engagement, NSF NHERI GSC – Terminology and Policy Updates of NHERI GSC Documentation – Career Development Workshop for NSF NHERI REU	2025
• Student Volunteer, 50th Annual Natural Hazards Research and Applications Workshop – Student Volunteer for both Workshop and Researchers Meeting	2025
• Secretary, SIU GIS club	2025
• Executive Member, SIU Nepalese Student Society	2024
• Lifetime member, Rotaract Club of Mahabouddha, Nepal	

PROFESSIONAL MEMBERSHIP

- Member, American Geophysical Union
- Member, American Association of Geographers
- Member, Gamma Theta Upsilon International Geographical Honor Society
- Member, YOUNGO - Official youth constituency of the UNFCCC
- Member, International Water Resources Association