

Parvin Momenian

Ph.D. Student | Plant, Environmental and Soil Sciences

School of Plant, Environmental and Soil Sciences | Louisiana State University / LSU AgCenter | Baton Rouge, LA, USA

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PROFILE

Ph.D. student in Soil Hydrology and Remote Sensing with a strong background in watershed management, hydrological modeling, GIS, and environmental data analysis. Current research focuses on understanding soil moisture-terrestrial carbon assimilation relationships using remote sensing, geospatial analysis, and data-driven modeling approaches. Research interests include drought monitoring, ecosystem productivity, climate-smart agriculture, hydrological processes, and water resources management.

EDUCATION

Ph.D. in Plant, Environmental and Soil Sciences

Spring 2025-Present

Louisiana State University | Baton Rouge, LA, USA

Advisor: Dr. Vinit Sehgal

Research focus: Soil moisture, remote sensing, terrestrial carbon assimilation, drought monitoring and ecosystem response.

M.Sc. in Natural Resources Engineering - Watershed Management

Aug 2014-Jun 2016

Urmia University | Iran

Thesis: Assessment and Prioritization of Watersheds Based on Watershed Health Scores: Case Study of Ghotorchay, Khoy, West Azerbaijan

GPA/Rank: 3.85/4.00; Top 10% of graduates

B.Sc. in Natural Resources Engineering - Rangeland and Watershed Management

Sep 2008-Jul 2012

University of Kurdistan | Iran

Project: Detailed Studies and Implementation of Watershed Management in Nawara Watershed, Sanandaj

RESEARCH INTERESTS

- Soil hydrology and soil moisture dynamics
- Remote sensing of soil moisture and vegetation productivity
- Soil moisture-carbon assimilation relationships
- Drought monitoring, ecosystem response, and climate-smart agriculture
- Hydrological and watershed modeling, GIS, and geospatial environmental analysis

RESEARCH AND PROJECT EXPERIENCE

Graduate Researcher

Spring 2025-Present

Soil Hydrology and Remote Sensing Lab, LSU AgCenter |

Louisiana State University, Baton Rouge, LA, USA

- Conduct research on soil moisture-gross primary productivity relationships using remote sensing and geospatial datasets.
- Analyze spatial and temporal patterns of ecosystem productivity in relation to soil moisture variability.
- Develop and evaluate statistical, nonlinear, and data-driven models to assess environmental controls on terrestrial carbon assimilation.
- Process and analyze raster, time-series, and NetCDF datasets for large-scale environmental applications.
- Contribute to research focused on drought monitoring, ecosystem response, and climate-smart agricultural systems.

Research Contributor

2025-Present

LaCADIAN - Louisiana Climate and Digital Ag Network, LSU AgCenter

PROFESSIONAL EXPERIENCE

Executive Consultant

Aug 2017-Dec 2024

Andazyan | Iran

- Implemented economic and environmental planning components of watershed management projects.

- Conducted environmental impact assessments and contributed to mitigation strategy development.
- Supported watershed planning, natural resource management, and hydrological assessment projects.
- Collaborated with technical teams to evaluate environmental conditions and support sustainable watershed management practices.

PEER-REVIEWED PUBLICATIONS

- Momenian, P., Alaei, N., & Mostafazadeh, R. (2025). *Spatiotemporal changes in river flow seasonality and predictability using Colwell indices in Northwestern Iran*. Scientific Reports.
- Babaie, L., Alaei, N., Mostafazadeh, R., & Momenian, P. (2025). *Hotspot analysis and spatial correlation of river hydrological response based on FDC-derived indices in Northwest Iran*. Sustainable Water Resources Management, 11(2), 22.
- Mostafazadeh, R., Alaei, N., Keivan Behjou, F., & Momenian, P. (2025). *Dynamics of runoff and sediment yield response under different forest management systems*. Iranian Journal of Science and Technology, Transactions of Civil Engineering.
- Momenian, P., Nazarnezhad, H., Miryaghoubzadeh, M. H., & Mostafazadeh, R. (2018). *Assessment and prioritization of sub-watersheds based on watershed health scores: Case study of Ghotorchay, Khoy, West Azerbaijan*. Journal of Watershed Management Research, 9(17), 1-13. [In Persian]
- Momenian, P., Nazarnezhad, H., Miryaghoubzadeh, M. H., & Mostafazadeh, R. (2016). *Watershed health assessment of water quality based on the Schuler Diagram: Case study of Ghotorchay, Khoy, West Azerbaijan*. Proceedings of the 2nd International Congress on Earth Science & Urban Development. [In Persian]

CONFERENCE PRESENTATIONS

- Momenian, P. (2025). *Identifying Functional Pathways of Soil Moisture Relationship with Terrestrial Carbon Assimilation at Remote-Sensing Scale*. Presented at the Soil Science Society of America (SSSA) Annual Meeting.
- Momenian, P. (2025). *Assessment of Soil Moisture Relationship with Gross Primary Production Using Remote Sensing*. Poster presented at the American Geophysical Union (AGU) Fall Meeting.
- Sehgal, V., & Momenian, P. (2025). *Functional Pathways of Terrestrial Water–Carbon Coupling*. Poster presented the 2025 Kirkham Conference.
- Momenian, P., Nazarnezhad, H., Miryaghoubzadeh, M. H., & Mostafazadeh, R. (2016). *Watershed health assessment of water quality based on the Schuler Diagram: Case study of Ghotorchay, Khoy, West Azerbaijan*. Presented at the 2nd International Congress on Earth Science & Urban Development.

HONORS AND AWARDS

- **Remote Sensing Student Award Winner, AGU25 Remote Sensing Hydrology Sessions, American Geophysical Union, 2025** - Recognized for an outstanding student presentation in remote sensing and hydrology.
- **Ranked 49th, National Master's Entrance Exam, Iran, 2014**
- **Top 10% of Graduate Students, M.Sc. Program, Urmia University**

ACADEMIC SERVICE AND PEER REVIEW

Reviewer <i>IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2025)</i>	2025
• Reviewed two conference submissions for IGARSS 2025. • Contributed to the peer-review process for an international remote sensing symposium.	
Reviewer <i>IEEE International Geoscience and Remote Sensing Symposium (IGARSS 2026)</i>	2026
• Reviewed five conference submissions for IGARSS 2026. • Supported the scientific review process in remote sensing, geoscience, and environmental applications.	

PROFESSIONAL MEMBERSHIPS

- Graduate Student Member, American Geophysical Union (AGU), 2025-2026
- Graduate Student Member, Soil Science Society of America (SSSA), 2025-2026
- Graduate Student Member, American Society of Agronomy (ASA), 2025-2026
- Graduate Student Member, Crop Science Society of America (CSSA), 2025-2026

TECHNICAL SKILLS

Programming and Data Analysis: R, Python, Google Earth Engine, SPSS

Geospatial and Remote Sensing: ArcGIS Pro, ArcGIS, ENVI, TerrSet, raster data processing, satellite-based soil moisture analysis, vegetation productivity analysis, GIS-based watershed assessment

Hydrological and Environmental Modeling: HEC-HMS, HEC-RAS, RAP, watershed modeling, flow duration curve analysis, sediment yield analysis, hydrological response assessment

Data Processing and Visualization: NetCDF, geospatial raster analysis, time-series analysis, statistical modeling, model evaluation

Research and Professional Skills: Scientific writing, conference presentation, peer review, interdisciplinary collaboration, problem solving, teamwork, and technical communication

LANGUAGES

Kurdish: Native | **Persian:** Fluent | **English:** Professional working proficiency