ACADEMIC & RESEARCH CURRICULUM VITAE

Seyedhassan Alavinia

Faculty Member, Faculty of Natural Resources and Earth Sciences, University of Kashan

Ph.D. in Watershed Science and Engineering



Date of Birth	1361 (SH)	**Marital Status**	Married
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Note: Years in the 13xx/14xx range follow the Iranian Solar Hijri (SH) calendar (e.g., 1405 SH ≈ 2026 CE). Years in the 20xx range are Gregorian, as in the original CV.

Summary and Research Interests

Faculty member at the Faculty of Natural Resources and Earth Sciences, University of Kashan, and Ph.D. graduate in Watershed Science and Engineering, with a research record in drought, climate change and water resources, erosion and sediment, floods, and the application of artificial intelligence in water and climate sciences. Held a sabbatical at the University of Freiburg, Germany; collaborated on national and applied projects with the Ministry of Energy and the Ministry of Science; authored and translated two books; supervised and advised graduate theses; and served as a reviewer for domestic and international journals.

Meteorological and hydrological drought · Climate change and downscaling · Groundwater resources · Floods, erosion and sediment · Urban watershed management · AI and machine learning in hydrology and climate · Ecohydrology and watershed governance · Water diplomacy

Education

Degree	Field of Study	Institution	Period
Ph.D.	Watershed Science and Engineering	University of Kashan	1391 – 1395
Thesis: Assessing the Impact of Climate Change on Groundwater Resources of the Isfahan–Borkhar Plain			
M.Sc.	Watershed Engineering	Shahrekord University	1386 – 1388
Thesis: Analysis of Meteorological and Hydrological Drought in Part of the Karun Basin Using the L-Moments Method			
B.Sc.	Range and Watershed Engineering	Yazd University (Ardakan)	1382 – 1384
Project: Physiographic Studies of the Dehbala Watershed, Yazd Province			
Associate Degree	Range and Watershed Technology	Bu-Ali Sina University	1380 – 1382
Sabbatical	Freiburg, Germany	University of Freiburg	April – September 2016

Professional and Administrative Experience

1. **Expert, Abkhiz Gostar-e Sharq Consulting Engineers, Mashhad (Watershed Studies Unit)**
   1385 – 1388

2. **Expert, Studies Office, Navandishan-e Towse'e Paydar-e Asia (NETPA) Consulting Engineers**
   1388 – 1390
   Meteorology, climatology, hydrology and socio-economic expert, and project manager of the Sezar and Baghmalek watersheds, Khuzestan Province.

3. **Expert, Abadgaran-e Falat-e Sharq Consulting Engineers**
   1392 – 1393
   Project: "Study and Design of Rainwater Storage and Utilization Systems, Districts 1 and 5 of Tehran Municipality."

4. **Head, Department of Nature Engineering, Faculty of Natural Resources and Earth Sciences, University of Kashan**
   1403 – 1405

Research Projects

1. **"Investigating Changes in the Spatio-temporal Pattern of Climate Variables across the Country and Their Effect on the Implementation of Cloud Seeding Projects"**
   Consultant collaborator (contract) • 1397
   Client: Water Research Institute, Ministry of Energy

2. **"Investigating the Effects of Drought on Resource Fluctuations in the Super-Critical Plains of Isfahan Province for Optimal Management of Water Resource Exploitation"**
   Second research collaborator • 1392
   Client: Research Center of the Ministry of Science, Research and Technology; contracting institution: University of Kashan

3. **"Investigating the Effects of Climate Change and Drought Management" (National Macro Project)**
   Collaborating expert • 1390 – 1391
   Lead executor: Remote Sensing and GIS Center, Shahid Beheshti University

4. **"Investigating the Spatial and Temporal Distribution Trend of Meteorological Drought in Iran" (applied research project, code: 84162-WRE)**
   Project collaborator • 1387
   Client: Ministry of Energy

Articles Published in Domestic and International Journals

English-language (International) Articles

1. **Projections of future climates: exploring temperature and precipitation patterns in Iran's coastal regions with MPI-ESM1.2-HR**
   Fatemeh Parakandeh Shahrezaei, Seyed Hassan Alavinia, Ebrahim Omidvar
   Journal of Earth System Science • 2026 • Q2 • Scopus • JCR
   Corresponding author: Seyed Hassan Alavinia

2. **Integrative modeling for enhanced flood risk forecasting and management in Semi-Arid area of Iran**
   Mehdi Zarei, Rasoul Sarvestan, Seyed Hassan Alavinia, Leyla Rahimi
   Applied Water Science • 2026 • Q1 • Scopus • JCR

3. **Optimizing rain-gauge network design for enhanced estimate rainfall in ungauged plain and mountainous regions**
   Mehdi Zarei, Rasoul Sarvestan, Seyed Hassan Alavinia
   Earth Science Informatics • 2025 • Scopus • JCR

4 **Comparative assessment of FSM and MPSIAC models in quantifying soil sedimentation rates in the semi-humid and alpine regions of northern Iran**
Seyed Hassan Alavinia, Masoud Mottaghian
Environmental Monitoring and Assessment • 2024 • Scopus • JCR
Corresponding author: Seyed Hassan Alavinia

5 **Analysis of spatial changes of extreme precipitation and temperature in Iran over a 50-year period**
Zarei, M., Alavinia, S.H.
International Journal of Climatology • 2021 • Vol. 41, E2269–E2289

6 **The impact of rainfall fluctuations and uncontrolled exploitation on groundwater systems and hydrogeological drought**
Seyed Javad Sadatinejad, Arash Malekian, Hoda Ghasemieh, Seyed Hassan Alavinia
Biological Forum – An International Journal • 2016 • Vol. 8(2)

Persian-language (Domestic) Articles

1 **Comparative Evaluation of Machine Learning and Deep Learning Models in Predicting Climatic Parameters (Case Study: Kashan Synoptic Station)**
Ali Namazian, Seyed Hassan Alavinia
Geographical Explorations of Desert Areas • 1405 • ISC
Corresponding author: Seyed Hassan Alavinia

2 **Selection of the Optimal CMIP6 Model and Spatial Heterogeneity of Downscaled Precipitation and Temperature Projections in a Semi-Arid Basin, Central Iran**
Maryam Aghaei, Seyed Hassan Alavinia, Hoda Ghasemieh
Climate Change Research • 1405 • ISC
Corresponding author: Seyed Hassan Alavinia

3 **Analysis of Socio-economic Drivers of Stakeholder Participation in Watershed Governance (Case Study: Tochal Watershed, Pakdasht)**
Hossein Moradi, Hoda Ghasemieh, Seyed Hassan Alavinia
Ecohydrology • 1405 • ISC
Corresponding author: Seyed Hassan Alavinia

4 **Analysis of Meteorological Fluctuations and Assessment of Long-term Drought on the Southern Coasts of Iran Using Observational and Climate Modeling Approaches**
Seyed Hassan Alavinia, Mehdi Salmanpour, Atefeh Abkar
Ecohydrology Journal • 1404 • ISC
Corresponding author: Seyed Hassan Alavinia

5 **Evaluating the Performance of the Spreadsheet-Balansim Daily Water Balance Model in Simulating Runoff of the Beheshtabad Watershed**
Samira Bayati, Khodayar Abdollahi, Seyed Hassan Alavinia
Desert Ecosystem Engineering • 1404 • ISC

6 **Assessment of Future Temperature and Precipitation Changes through Downscaling of General Circulation Models (Case Study: Selected Synoptic Stations on the Southern Coasts of Iran)**
Fatemeh Parakandeh Shahrezaei, Seyed Hassan Alavinia, Ebrahim Omidvar
Natural Ecosystems Management Quarterly • 1403 • ISC
Corresponding author: Seyed Hassan Alavinia

7 **Evaluating the Performance of Mechanical and Biomechanical Watershed Management Measures on Flood, Erosion, Sediment and Vegetation Changes in Arid and Semi-arid Regions (Case Study: Badkesh Watershed, Minab County)**
Masoud Mottaghian, Seyed Hassan Alavinia, Reza Ghazavi
Geographical Studies of Arid Regions • 1402 • Vol. 14, No. 53, pp. 67–84
doi: 10.22034/jargs.2023.397286.1029

8 **Landslide Hazard Assessment and Zoning in the Bionij Watershed, Kermanshah Province**
Mehdi Zarei, Hadis Moradi, Seyed Hassan Alavinia, Kazem Aliabadi
Geographical Studies of Mountain Areas • 1402 • Vol. 4, No. 1, pp. 169–188
doi: 10.52547/gsma.4.1.169

9 **Long-term Statistical Analysis of Meteorological Drought Trends in Isfahan Province**
Abbasali Vali, Hadi Zarepour, Hamid Ghorbani, Seyed Javad Sadatinejad, Seyed Hassan Alavinia
Desert Ecosystem Engineering • 1401 • Vol. 11, No. 34, pp. 113–126
doi: 10.22052/deej.2021.11.34.1

10 **Comparative Evaluation of Statistical and Artificial Intelligence Models for Drought Forecasting at the Isfahan Synoptic Station**
Hadi Zarepour, Abbasali Vali, Hamid Ghorbani, Seyed Javad Sadatinejad, Seyed Hassan Alavinia
Desert Management • 1401 • Vol. 10, No. 1, pp. 15–36
doi: 10.22034/jdmal.2022.545156.1361

11 **Baseflow Estimation for Environmental Flow Assessment in Rivers of Arid and Semi-arid Regions (Case Study: Shamkan River, Sabzevar)**
Mehdi Zarei, Boroghani, Seyed Hassan Alavinia
Water Resources Engineering • 2020 • Vol. 13, No. 44, pp. 37–51

12 **Analysis of Temperature Extreme Trends under Future Scenarios to Assess Climate Fluctuations (Case Study: Sanandaj and Saqqez Synoptic Stations)**
Seyed Hassan Alavinia, Mehdi Zarei
Geographical Studies of Arid Regions • 2020 • Vol. 11, No. 41, pp. 1–16
Corresponding author: Seyed Hassan Alavinia

13 **Climate Change Trend Analysis Using Extreme Indices of Long-term Precipitation and Temperature Data in Southeastern Iran**
Seyed Hassan Alavinia, Mehdi Zarei
Regional Planning Quarterly (scientific-research) • 2020 • pp. 119–134
Corresponding author: Seyed Hassan Alavinia

14 **Analysis of Groundwater Balance to Investigate Stress on the Aquifer in Arid Regions**
Seyed Hassan Alavinia, Seyed Javad Sadatinejad, Malekian, Ghasemieh
Geographical Studies of Arid Regions • 2019 • Vol. 10, No. 38, pp. 25–36
Corresponding author: Seyed Hassan Alavinia

15 **Regional Frequency Analysis of Meteorological Drought in the Karun-1 Basin**
Seyed Javad Sadatinejad, Seyed Hassan Alavinia, Khodayar Abdollahi, A. Honarbakhsh
Research Journal of Agricultural Sciences and Natural Resources (Sari University of Agricultural Sciences and Natural Resources) • 1392
Corresponding author: Seyed Hassan Alavinia

16 **A Model for Hydrological Drought Forecasting in the Karun-1 Basin**
Seyed Hassan Alavinia, Seyed Javad Sadatinejad, Khodayar Abdollahi
Environmental Erosion Research Quarterly (Hormozgan University) • 1390
Corresponding author: Seyed Hassan Alavinia

Authored and Translated Books

1 **Urban Watershed Management (Pollution and Sustainable Development)**
Seyed Javad Sadatinejad, Seyed Hassan Alavinia
Authored • ACECR (Jahad Daneshgahi) Tehran Province Organization • 1398

2 **Watershed Management in Action: Lessons Learned from FAO Field Projects**
Seyed Hassan Alavinia, Seyed Javad Sadatinejad
Translation • ACECR (Jahad Daneshgahi), Amirkabir University of Technology • 1400

Papers Accepted at Domestic and International Conferences

International Conferences

1 **Relevance comparison of meteorological drought indices for hydrological flow in Armand River basin, Iran**
Khodayar Abdollahi, Okke Batelaan, Ghatreh Ghatreh, Seyed Javad Sadatinejad, Seyed Hasan Alavinia
Geophysical Research Abstracts, Vol. 13 • Vienna, Austria • January 2011

Domestic (National) Conferences

1 **The Role of Bio-cultural Diversity and Indigenous Knowledge in Enhancing Eco-hydrological Conservation of Iran’s Arid Watersheds: An Analytical Review**
Seyed Hassan Alavinia, Atefeh Abkar
1st Iranian Conference on Ecohydrology Engineering • University of Tehran • 26/09/1404 • Full paper

2 **Investigating the Effects of Climate Change on Hydrological Processes and Ecohydrological Consequences**
Maryam Aghaei, Seyed Hassan Alavinia, Hoda Ghasemieh
1st Iranian Conference on Ecohydrology Engineering • University of Tehran • 26/09/1404 • Full paper

3 **Investigating the Effect of Culture-building in Water Resources Conservation with Emphasis on a Sustainable Environment**
Maryam Aghaei, Hoda Ghasemieh, Seyed Hassan Alavinia
1st Iranian Conference on Ecohydrology Engineering • University of Tehran • 26/09/1404 • Full paper

4 **From Geomorphology to Sedimentograph: A New Conceptual Model, SEDGEM, for Event-scale Sediment Simulation**
Seyed Hassan Alavinia, Khodayar Abdollahi, Nosratollah Esmaili
20th National Conference on Watershed Science and Engineering of Iran (Smart Watershed Management) • Razi University • 28/08/1404 • Full paper

5 **A Comparative Study of Novel Artificial Intelligence Approaches in Drought Management: Case Study of Iran and Global Examples**
Seyed Hassan Alavinia, Mehdi Zarei
20th National Conference on Watershed Science and Engineering of Iran (Smart Watershed Management) • Razi University • 28/08/1404 • Full paper

6 **Modeling Climate Change in Arid Regions with Artificial Intelligence: A Review of Challenges, Opportunities and Case Studies in Iran**
Seyed Hassan Alavinia
3rd National Conference on Water and Meteorology of Iran (Focus on Climate Change) • Urmia University • 16/07/1404 • Full paper

7 **Evaluating the Effectiveness of Local Community Empowerment Programs in Coastal Watersheds: A Multi-criteria Approach**
Seyed Hassan Alavinia
19th National Conference on Watershed Science and Engineering of Iran (Watershed Management in Coastal Watersheds) • University of Hormozgan • 24/11/1403 • Full paper

8 **Effects of Sustainable Watershed Management and Planning on the Development of Sustainable Ecotourism, Case Study: Gerdoo Watershed Park, Arak Metropolis**
Mohsen Seidali, Seyed Hassan Alavinia
18th National Conference on Watershed Science and Engineering of Iran (Watershed Management, Restoration and Rehabilitation of Water and Soil Resources) • University of Kashan • 1402

9 **Performance Evaluation of a Reservoir-based Daily Water Balance Model in Simulating Flow of the Beheshtabad Watershed**
Samira Bayati, Khodayar Abdollahi, Seyed Hassan Alavinia
18th National Conference on Watershed Science and Engineering of Iran (Watershed Management, Restoration and Rehabilitation of Water and Soil Resources) • University of Kashan • 1402

10 **Forecasting the SPI Drought Index Using Artificial Neural Networks (Case Study: Kish Region)**
Alireza Pourmehr, Seyed Hassan Alavinia
18th National Conference on Watershed Science and Engineering of Iran (Watershed Management, Restoration and Rehabilitation of Water and Soil Resources) • University of Kashan • 1402

11 **Investigating the Flood Potential of Sub-watersheds Using the FLDP Method (Case Study: Kuhestan Watershed, Semnan Province)**
Masoud Mottaghian, Seyed Hassan Alavinia, Sepideh Mofidi, Zahra Abdollahpour
18th National Conference on Watershed Science and Engineering of Iran (Watershed Management, Restoration and Rehabilitation of Water and Soil Resources) • University of Kashan • 1402

12 **Inter-basin Virtual Water Transfer: A Solution to Prevent Socio-economic Drought (Case Study: Khuzestan Province)**
Seyed Hassan Alavinia, Gholam Nazari Birgani
17th National Conference on Watershed Science and Engineering of Iran (Watershed Management and Sustainable Food Security) • University of Jiroft • 1401

13 **Water Diplomacy as a Solution for Stabilizing Security and Optimal Utilization of Transboundary Watersheds**
Seyed Hassan Alavinia, Gholam Nazari Birgani
17th National Conference on Watershed Science and Engineering of Iran (Watershed Management and Sustainable Food Security) • University of Jiroft • 1401

14 **Combating Drought through Preventive Approaches by International Cooperation**
Seyed Hassan Alavinia
2nd International and 5th National Conference on Conservation of Natural Resources and Environment • Ardabil • 1400 • https://civilica.com/doc/1248831

15 **Xeriscaping: A Solution for the Wise Use of Water during Drought and in Arid Regions for Landscaping**
Seyed Hassan Alavinia
2nd International and 5th National Conference on Conservation of Natural Resources and Environment • Ardabil • 1400

16 **Proper Management, Conservation and High Productivity of Green Water as a Strategic Resource in Agricultural Water Supply**
Seyed Hassan Alavinia, M. Zarei
1st National Conference on Natural Resources, Medicinal Plants and Traditional Medicine (Association for Management and Engineering of Technology Development, supported by Civilica) • Tehran • 1398

17 **Negative Effects of Urban Runoff Pollutants on the Health of Urban Watershed Ecosystems and Strategies for Their Removal and Runoff Utilization**
Seyed Hassan Alavinia, M. Zarei
1st National Conference on Natural Resources, Medicinal Plants and Traditional Medicine (Association for Management and Engineering of Technology Development, supported by Civilica) • Tehran • 1398

18 **Comparison of Regression and Neural Network Models for Rainfall Simulation in Arid and Semi-arid Regions**
M. Zarei, Seyed Hassan Alavinia
14th National Conference on Watershed Science and Engineering of Iran • Urmia University • 1398

19 **Evaluation and Analysis of Meteorological and Hydrological Drought Indices as the Onset of the Drought Phenomenon**
Seyed Hassan Alavinia
Regional Drought Seminar • Shahrekord University • 1387

20 **Effects of Socio-economic Drought and Its Relationship with Inter-basin Water Transfer**
Seyed Hassan Alavinia
Regional Drought Seminar • Shahrekord University • 1387

Thesis Supervision and Advising

1 **Assessment of Watershed Residents' Participation in and Satisfaction with Watershed Management Projects in the Tochal Watershed, Pakdasht**
Student: Hossein Moradi
Supervisor • M.Sc. • University of Kashan • 1405

2 **Spatio-temporal Analysis of Extreme Precipitation and Temperature Indices for Climate Change Detection (Case Study: Namak Lake Basin)**
Student: Pouria Jassas
Supervisor • M.Sc. • University of Kashan • 1404

3 **Predicting Future Climatic Conditions of Selected Synoptic Stations in Northern and Southern Iran by Statistical Downscaling of General Circulation Models**
Student: Fatemeh Shahrezaei Parakandeh
Supervisor • M.Sc. • University of Kashan • 1403

4 **Downscaling General Circulation Models to Predict Future Temperature and Precipitation (Case Study: Selected Stations in Western Iran)**
Student: Amir Ehsan Behzad
Advisor • M.Sc. • University of Kashan • 1402

5 **Evaluating the Performance of Watershed Management Operations on Water Resources, Soil Erosion and the Economy of Watershed Residents (Case Study: Badkesh Watershed, Minab County)**
Student: Masoud Mottaghian
Supervisor • M.Sc. • University of Kashan • 1402

6 **Assessment, Analysis and Prediction of Climatic Drought Using Downscaling Models (Case Study: Isfahan Province)**
Student: Hadi Zarepour
Advisor • Ph.D. • University of Kashan • 1401

7 **Effects of Upstream Land Use Changes on Urban Watersheds (Case Study: Watersheds of Chaharmahal and Bakhtiari Province)**
Student: Namdar Namdari Golsefidi
Advisor • M.Sc. • University of Kashan • 1401

8 **Analysis and Monitoring of Meteorological and Hydrological Drought Using the L-Moments Method (Case Study: Rud-e Zard Watershed, Khuzestan Province)**
Student: Gholam Nazari Birgani
Advisor • M.Sc. • Ardakan University • 1395

Journal Refereeing

Domestic journals	Desert Ecosystem Engineering; Iranian Journal of Watershed Science and Engineering; Geographical Studies of Arid Regions; and other journals
International journals	Water Resources Management; Environmental Research Communications; Environmental Research Letters; Natural Hazards

Skills and Competencies

1 **Proficient in ArcGIS**

2 **Proficient in climate models and groundwater models**

3 **Proficient in statistical software such as SPSS and XLSTAT**

4 **Proficient in AutoCAD**

5 **Surveying and mapping/drafting**

6 **Proficient in artificial intelligence models**