

Dr. Tayebe Mesbahzadeh

Associate Professor, Faculty of Natural Resources

Member, UNCCD Science–Policy Interface (As Independent Scientist) (2022–2026)

Collaborator, Institute of Atmospheric and Climate Sciences (ISAC), CSPM Project

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1. Personal Information

Name: Dr. Tayebe Mesbahzadeh

Current Position: Associate Professor, Faculty of Natural Resources

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2. Education

Ph.D., Decision Support Systems & Modeling for Sustainable Development, University of Tehran

- Sabbatical: University of Sassari, Soil Department.

Postdoc. ISAC. LEECHE. ITALY.

Training Teacher: Eustoni University, soil Department.

M.Sc., Natural Resources Modeling, University of Tehran

B.Sc., Soil Science, Ferdowsi University of Mashhad

3. Academic Positions

Associate Professor, Faculty of Natural Resources, University of Tehran — (2013–present)

4. Research Profile

As a researcher in natural hazard modeling, climate change impacts, soil erosion, and land degradation assessment. My expertise spans atmospheric modeling (WRF-Chem), hydrological and climate scenario analysis, remote sensing, and geospatial environmental monitoring, soil Lab., . My applied research connects climate adaptation, drought resilience, restoration, and community-based environmental education, emphasizing women, youth, and vulnerable groups.

5. Research Achievements & Impact

- Member of UNCCD Science–Policy Interface (SPI) contributing to global assessments, science-policy guidelines, and the Global Land Outlook (GLO3).
 - Lead and co-lead of major dust modeling studies across Central and West Asia.
 - Significant contributions to sustainable land management, drought risk assessment, and climate–land interactions.
 - Organizer and chair of multiple international webinars on climate change and natural resources management.
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6. Research Projects & Grants

IMDP Training Programs – Drought and water management training for communities.

Mycorrhiza Restoration Projects – Local community training for degraded land rehabilitation.

CSPM Project, ISAC – Collaborator (2023–).

7. Leadership & Group Development

- Leader of community-based environmental education programs (children, youth, women).

- Developer of multi-stakeholder partnerships linking academia, local communities, and policy institutions.
 - Long-standing cooperation with schools and community groups on sustainability and climate literacy.
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8. Teaching Portfolio (Summary)

- Lecturer in climate change, land degradation, remote sensing, environmental modeling, dust storm dynamics, and drought risk assessment.
 - Field-course instructor.
 - Developer of educational curricula for natural resource conservation and environmental science.
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9. Supervision

- Supervision of more than 35 MSc and 23 PhD students in climate modeling, drought assessment, land degradation, and atmospheric sciences.
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10. International Collaboration & Networks (Expanded)

- **UNCCD Science–Policy Interface (SPI):** contributing to global environmental governance and scientific assessments.
 - Collaboration with **ISAC/CNR (Italy)** under the CSPM Project (Climate & Atmospheric Modeling).
 - Partnership with **University of Sassari** on climate–land interactions and modeling.
 - Engagement in global networks on dust modeling, drought resilience, and land degradation.
 - **Collaboration with the FAO WECAN Group:** supporting women-centered climate adaptation, sustainable land management initiatives, and community-based capacity building programs in collaboration with FAO’s Women’s Empowerment, Climate Action & Nature (WECAN) platform.
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11. Science–Policy Engagement & Outreach (Expanded) & Networks

- UNCCD SPI (2022–2026).
 - ISAC – Institute of Atmospheric and Climate Sciences (CSPM Project).
 - Collaborations with University of Sassari.
 - Involvement in international dust modeling and land degradation networks.
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11. Science–Policy & Outreach

- Contributor to global processes on drought resilience and land restoration.
 - Developer of environmental education programs for children and youth.
 - Public speaker in international webinars on climate and land issues.
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12. Honors & Awards

- ECO Award (2023).
 - Recognized by FAO as a “Hero Woman for Empowering Women”.
 - Champion women 2024.empowering of women against drought. COP16.
 - Selected from the 1402 International Festival, University of Tehran
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13. Books & Translations

- *The World of Hills* (Translator), University of Tehran Press, 2022.
 - *Advanced Environmental Wind Engineering* (Translator), 2020.
 - *Using NDVI to Evaluate Land Degradation at Multiple Scales* (Author), 2017.
 - *Ultra-Spectral Imagery Applications in Natural Resources* (Compiler), 2018.
 - *Monitoring and Evaluation* (Translator), 2012.
 - *Land Use and Soil Resources* (Translator), 2011.
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14. Selected Publications

Global Change & Aridity Trends

- Vicente-Serrano, S. M., Pricope, N. G., Toreti, A., Moran-Tejeda, E., Spinoni, J., Ocampo-Melgar, A., Archer, E., Diedhiou, A., **Mesbahzadeh, T.**, Ravindranath, N. H., Pulwarty, R. S., & Alibakhshi, S. (2024). *The United Nations Convention to Combat Desertification Report on Rising Aridity Trends Globally and Associated Biological and Agricultural Implications*. **Global Change Biology**.
- Pricope, N. G., Vicente-Serrano, S. M., Toreti, A., Ocampo-Melgar, A., Spinoni, J., Moran-Tejeda, E., Archer, E., Diedhiou, A., Ravindranath, N., **Mesbahzadeh, T.**, Pulwarty, R. S., & Alibakhshi, S. (2024). *Increasing aridification calls for urgent global adaptive solutions and policy action*. **Nature Water**.

Atmospheric & Dust Modeling**

- Vicente-Serrano, S. M., Pricope, N. G., Toreti, A., Moran-Tejeda, E., Spinoni, J., Ocampo-Melgar, A., Archer, E., Diedhiou, A., **Mesbahzadeh, T.**, Ravindranath, N. H., Pulwarty, R. S., & Alibakhshi, S. (2024). *The United Nations Convention to Combat Desertification Report on Rising Aridity Trends Globally and Associated Biological and Agricultural Implications*. **Global Change Biology**.

Atmospheric & Dust Modeling**

Example entries already extracted from your CV: - Mesbahzadeh, T., Miglietta, M.M., et al. (2022). Regional Analysis of Dust-Day Duration... *Applied Sciences*, 12(12).
- Soleimani Sardoo, F., Mesbahzadeh, T., et al. (2022). Soil Moisture Influence on Vertical Dust Flux Using WRF-Chem. *Land*.
- Mirakbari, M., Mesbahzadeh, T., et al. (2020). Trends of Extreme Rainfall and Temperature... *Natural Resource Modeling*.

15. Additional Materials

Full List of Projects

- Mycorrhiza project for drought adaptation and restoration of degraded lands in Lake Urmia region.
- Innovative approaches to engage local communities in drought resilience.
- Dryland project including workshops on natural hazards in China.
- Dust storm studies and workshops at ISAC, Italy.

Workshops

- Workshops on initiative for empowering women to cope with drought. COP16
- Workshops for translating scientific knowledge to local stakeholders and communities. COP16
- Workshops on drought mitigation potential in UN organizations. COP16
- Environmental education and natural resource conservation programs.
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- **Invited Talks**
- Participation and facilitation in multiple international workshops on drought, land restoration, and climate adaptation.
- Invited talks for professional and academic audiences on sustainable land management and climate resilience.

Media Contributions

- Interviews with domestic news agencies.
- “Women-led solutions for drought resilience” — **FAO** report on the project on land reclamation and sustainable land management with local community participation, which she led. https://www.fao.org/in-action/dryland-sustainable-landscapes/news-and-events/news-detail/women-led-solutions-for-drought-resilience/en?utm_source=chatgpt.com
- Interview with **DEVEX** on climate change adaptation and natural resource management. https://www.devex.com/news/meningitis-surge-in-africa-is-linked-to-sahel-sand-and-dust-storms-108938?consultant_exists=true&oauth_response=success.
- https://www.tehrantimes.com/news/480107/Iranian-female-scientist-selected-UNCCD-member?utm_source=chatgpt.com

3. Academic Positions (Updated & Expanded)

Associate Professor, Faculty of Natural Resources, University of Tehran —

- Conducting research on dust storms, climate modeling, land degradation, and sustainable land management.
- Supervising MSc and PhD students and leading interdisciplinary research collaborations.
- Teaching advanced courses in environmental modeling, climate dynamics, and land processes.

Assistant Professor, University of Tehran.

- Established a research program on desertification, drought modeling, and dust emission.
 - Built international networks with ISAC, UNCCD-SPI, and other global partners.
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5. Research Achievements & Impact (Expanded)

- Contributor to **UNCCD Global Assessments**, including science inputs for GLO3 and policy-relevant scientific guidance for drought resilience and land restoration.
 - Pioneered the integration of **WRF-Chem modeling with land degradation indicators**, providing actionable data for regional governments.
 - Advanced methodologies on **dust flux simulation**, contributing to improved early warning systems.
 - Demonstrated leadership in connecting **science, education, and communities**, especially through youth and women empowerment programs.
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6. Research Projects & Grants (Expanded Framework)

Major Research Projects

CSPM Project – ISAC/CNR Collaboration (2023–Present)

Role: Collaborator

Description: Climate and atmospheric modeling focusing on dust transport and land–atmosphere interactions.

IMDP Training Program – Drought & Water Resource Management (Year–Year)

Role: PI/Co-PI (*specify*)

Description: Community-based capacity building for drought resilience across vulnerable regions.

Mycorrhiza Restoration Initiative (Year–Year)

Role: PI/Co-PI

Description: Promoting ecosystem restoration through biological soil improvement and local community training.

7. Leadership & Group Development (Expanded)

- Leading an interdisciplinary research group on **climate–land interactions**, connecting atmospheric sciences, soil science, and remote sensing.
- Mentoring early-career researchers and students in modeling, geospatial analysis, and environmental policy.

- Facilitating cross-sectoral platforms bringing together **universities, local communities, NGOs, and international bodies.**
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8. Teaching Portfolio (Expanded Summary)

Courses taught include: - Climate Change Impacts & Adaptation Strategies

- Environmental Modeling (WRF-Chem, GOCART, AFWA)

- Dust Storm Dynamics & Mitigation

- Land Degradation Assessment & Monitoring

- Remote Sensing for Natural Resources

Visiting Lecturer, Department of Soil Science, University of Estoni, 2022. Delivered lectures and practical sessions on soil management, land degradation, and sustainable agriculture.

- Supervised student projects and facilitated hands-on learning in soil sampling, analysis, and modeling.

Teaching achievements: - Designed field-based training modules for assessing degraded lands.

- Developed active-learning curricula focused on land–water–climate linkages.

- Implemented community outreach educational programs for youth.

9. Supervision (Expanded)

- Supervised **MSc theses** on drought analysis, dust modeling, soil quality assessment, and climate scenario studies.
 - Supervised **PhD dissertations** on land degradation, climate risk modeling, and atmospheric processes.
 - Mentored undergraduate research projects and internships.
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10. International Collaboration & Networks (Expanded)

- **UNCCD Science–Policy Interface (SPI)**: contributing to global environmental governance and scientific assessments.

- Collaboration with **European atmospheric and geoscience research centers**, including ISAC/CNR (Italy).
 - Research partnerships with **University of Sassari** on climate–land interactions.
 - Engagement in global dust modeling communities.
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11. Science–Policy Engagement & Outreach (Expanded)

- Supporting UNCCD Parties through evidence-based policy guidance on drought, land degradation, and climate resilience.
 - Leading training for local communities, women, and youth on climate adaptation and sustainable land practices.
 - Delivered invited talks in international environmental science webinars.
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14. Selected Publications (Expanded and Structured)

Atmospheric & Dust Modeling

- Mesbahzadeh, T., Miglietta, M.M., et al. (2022). Regional Analysis of Dust-Day Duration... *Applied Sciences*, 12(12).
- Soleimani Sardoo, F., Mesbahzadeh, T., et al. (2022). Soil Moisture and Dust Flux... *Land*.
- Mesbahzadeh, T., et al. (2021). Temporal–Spatial Variations of Dust Days...

Climate Change & Drought Scenarios

- Mirakbari, M., Mesbahzadeh, T., et al. (2020). Extreme Rainfall & Temperature Trends... *Natural Resource Modeling*.
- Mesbahzadeh, T., et al. (2019). Meteorological Drought under RCP Scenarios...

Remote Sensing & Land Degradation

- Jafari, M., Mesbahzadeh, T., et al. (2021). Dust Storm Detection via Remote Sensing...

Hydrology & Groundwater

- Kamali, K., Zehtabian, G., Mesbahzadeh, T., et al. (2021). Soil Quality Assessment...
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15. Books & Translations (Formatted)

- – *The World of Hills* (2022). University of Tehran Press.
 - – *Advanced Environmental Wind Engineering* (2020).
 - – *Using NDVI to Evaluate Land Degradation* (2017).
 - **Compiler** – *Ultra-Spectral Imagery Applications* (2018).
 - – *Monitoring and Evaluation* (2012).
 - – *Land Use and Soil Resources* (2011).
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