Mohsin Tariq

Nationality: Pakistani **Gender:** Male

LinkedIn: [redacted]

Website: https://orcid.org/0009-0004-0444-0596

EDUCATION AND TRAINING

Doctor of Philosophy

University of Ġ D. Annunzio Chieti-Pescara [06/2020 – 12/2023]

Address: Department of Psychological Health and Territory Sciences, Chieti (Italy) | **Thesis:** Impact of climate change on water resources in Abruzzo-central Italy (A case study of the Aterno-Pescara River watershed)

Visiting Graduate Student

The Pennsylvania State University [12/2022 – 02/2023]

Address: Department of Agricultural and Biological Engineering, State College-Pennsylvania (United States)

Visiting Graduate Student

University of Calgary [09/2022 – 11/2022]

Address: Department of Civil Engineering, Calgary (Canada)

Masters in Geophyscis

University of Peshawar [10/2012 – 12/2015]

Address: National Centre of Excellence in Geology, Peshawar (Pakistan)

Bachelor of Science

COMSATS University Islamabad, Abbottabad Campus [09/2008 – 08/2012]

Address: Department of Earth Sciences, Abbottabad (Pakistan)

WORK EXPERIENCE

Research Institute for Geo-Hydrological Protection (IRPI)-CNR – Perugia, Italy

Postdoctoral Researcher

[15/05/2025 – Current]

- Snow cover analysis over Mediterranean region
- Data assimilation
- Estimation of groundwater recharge and runoff
- Groundwater recharge and runoff uncertainty analysis

Institute of Atmospheric Sciences and Climate (ISAC)-CNR – Bologna, Italy

Assegno Professionalizzante (Young Researcher)

[15/04/2024 – 14/05/2025]

- Analysis and validation of high-resolution meteorological dataset
- Reanalysis data application in hydroclimatological studies
- Drought risk mitigation in Italy

COMSATS University Islamabad, Abbottabad Campus – Abbottabad, Pakistan

Lecturer at Department of the Earth Sciences

[02/2016 – 16/03/2025]

- Instructing undergraduate students
- Organizing field trips, seminars, workshops, and training sessions
- Supervising and guiding undergraduate students in their thesis
- Developing curriculum content for undergraduate courses
- Coordinating research activities, including field trips, seminars, workshops, and training sessions.

COMSATS University Islamabad, Abbottabad Campus – Abbottabad, Pakistan

Visiting Lecturer at the Department of Earth Sciences

[30/08/2013 – 12/02/2016]

- Instructing undergraduate students
- Organizing field trips, seminars, workshops, and training sessions

PROJECTS

[15/05/2025 – Current]
GLANCE-Agricultural Land Abandonment and Climate change (European Space Agency)

[15/04/2024 – 14/05/2025]
INTERROGATION-Analysis and validation of a high-resolution meteorological-climatic dataset, obtained by dynamical downscaling of the ERA5 reanalysis, and its application to climate and hydrological studies with an emphasis on drought risk mitigation in Italy (PNRR)

[08/2017 – 06/2020]
Behavior of the Indian Lithosphere Mantle Beneath the Western Himalayan Syntaxis (NSF)

PUBLICATIONS

[2026]
Homogenization of the Central Italy Monthly Precipitation Instrumental Data Series from 1930 to 2017 Abouzied G. A. A., E. Arruffo., **M. Tariq**, and P. Di Carlo (2026). "Homogenization of the Central Italy Monthly Precipitation Instrumental Data Series from 1930 to 2017". **(Article in Preparation)**

[2026]
MORE, a New Convection-Permitting Reanalysis Dataset over Italy and the Alpine Region: Validation and Application in Weather, Climate and Hydrology Stocchi, P., F. Cavalleri, **M. Tariq**, M. Brunetti, S. Camici, D. Mastrangelo, F. Di Sante and S. Davolio (2026). "MORE, a New Convection-Permitting Reanalysis Dataset over Italy and the Alpine Region: Validation and Application in Weather, Climate and Hydrology". **(Preprint)** https://doi.org/10.5194/essd-2025-789

[2026]
Investigating future climate change impacts on streamflow and drought characterization in the Arno River basin, using CMIP6 and SWAT+ model Talpur, H. A, **M. Tariq**, S. Nasreen, A. Ahmed, S. A. Talpur, and P. Di Carlo (2026). "Investigating future climate change impacts on streamflow and drought characterization in the Arno River basin, using CMIP6 and SWAT+ model". https://doi.org/10.1016/j.watcyc.2026.03.006

[2025]
Hydro-climatic trends in Central Italy: A case study from the Aterno - Pescara River watershed Tariq, M., E. Aruffo, P. Chiacchiaretta and P. Di Carlo (2025). Hydro-climatic trends in Central Italy: A case study from the Aterno - Pescara River watershed". https://doi.org/10.3390/su17020493

[2024]
Understanding future hydrologic challenges: Modelling the impact of climate change on river runoff in central Italy Tariq, M., A. N. Rohith, R. Cibin, E. Aruffo., G. A. A. Abouzied and P. Di Carlo (2024). "Understanding future hydrologic challenges: Modelling the impact of climate change on river runoff in central Italy". https://doi.org/10.1016/j.envc.2024.100899

[2020]
The Use of PALSAR (D.E.M.) for Mega Fracture Analysis of Dabbar Anticline, Sulaiman Fold Belt, Pakistan Tariq, M., M. Zaib, O., P. Di Carlo, Shah, S. T. H., Adnan., M. Kashif and A. Rehman (2020). "The Use of PALSAR (D.E.M.) for Mega Fracture Analysis of Dabbar Anticline, Sulaiman Fold Belt, Pakistan". 2nd Conference on Sustainability in Civil Engineering (CSCE'20) Islamabad Pakistan, Department of Civil Engineering, Capital University of Science and Technology, Islamabad Pakistan.

[2020]
Gold deposits of Pakistan: a short review Shah, S., T, H., **M. Tariq**, N. G. Khan, Z. Khan, A. Rahman, K. Wahab, G. Bacha, A. and Ibad-ullah (2020). "Gold deposits of Pakistan: a short review". Bulletin of Nepal Geological Society. 37: 177-181.

[2019]

Chromite Deposits of Pakistan: A Short Review Shah, S. T. H., **M. Tariq**, N. G. Khan, F. U. Rehman, A. Iftikhar, A. Farid and S. Naseer (2019). "Chromite Deposits of Pakistan: A Short Review". International Journal of Research - GRANTHAALAYAH. https://doi.org/10.5281/zenodo.3354292

[2018]

Potentially toxic elements in soil of the Khyber Pakhtunkhwa province and Tribal areas, Pakistan: evaluation for human and ecological risk assessment Saddique, U., S. Muhammad, **M. Tariq**, H. Zhang, M. Arif, I. A. K. Jadoon and N. U. Khattak (2018). "Potentially toxic elements in soil of the Khyber Pakhtunkhwa province and Tribal areas, Pakistan: evaluation for human and ecological risk assessment". Environmental Geochemistry and Health. https://doi.org/10.1007/s10653-018-0091-2

[2017]

Mercury contamination in selected foodstuffs and potential health risk assessment along the artisanal gold mining, Gilgit-Baltistan, Pakistan Riaz, A., S. Khan, S. Muhammad, C. Liu, M. T. Shah and **M. Tariq** (2017). "Mercury contamination in selected foodstuffs and potential health risk assessment along the artisanal gold mining, Gilgit-Baltistan, Pakistan". Environmental Geochemistry and Health. https://doi.org/10.1007/s10653-017-0007-6

ABSTRACTS

[2026]

Multidecadal snow water equivalent reconstruction in Central Italy using the Multiple Snow Data Assimilation System

Tariq, M., E. Alonso-González, M. Girotto, F. Avanzi, M. Rossi, P. Stocchi, P. Tuccella and C. Massari (2026). "Multidecadal snow water equivalent reconstruction in Central Italy using the Multiple Snow Data Assimilation System". *(EGU-2026)*

[2026]

Do Earth Observation Essential Climate Variables (ECVs) provide a consistent picture of land surface dynamics? Insights from a multi-variable analysis over the Mediterranean region

Laluet, P., C. Corbari, C. Massari, L. Ciabatta, O. D. Adeniyi, **M. Tariq**, D. Oxoli, M. A. Brovelli, A. Wappis, S. Hebden and W. Dorigo (2026). "Do Earth Observation Essential Climate Variables (ECVs) provide a consistent picture of land surface dynamics? Insights from a multi-variable analysis over the Mediterranean region". (EGU-2026)

[2026]

Integrated Satellite-Based Monitoring of Snow Cover Variability in the Mediterranean Region

Tariq, M., F. Avanzi, L. Ciabatta, M. Rossi, M. Donnini, A. Tarpanelli, M. Girotto and C. Massari (2026).

"Integrated Satellite-Based Monitoring of Snow Cover Variability in the Mediterranean Region". *(SnowHydro-2026).*

[2025]

Multi-Sensor Snow Cover Assessment over the Mediterranean Region

Tariq, M., F. Avanzi, L. Ciabatta, M. Rossi, M. Donnini, A. Tarpanelli and C. Massari (2025).

"Multi-Sensor Snow Cover Assessment over the Mediterranean Region". *(OEMC Global Workshop-2025).*

[2025]

MORE: High-Resolution MOLOCH-downscaled ERA5 REanalysis – Validation and Applications in Weather, Climate, and Hydrology

Stocchi, P., **M. Tariq**, F. Cavalleri, S. Davolio, M. Brunetti, S. Camici and D. Mastrangelo (2025). "MORE: High-Resolution MOLOCH-downscaled ERA5 REanalysis – Validation and Applications in Weather, Climate, and Hydrology". (EMS-2025)

[2025]

Climate Change Impact on River Runoff and Drought Characteristics in the Arno River Basin, Tuscany, Italy

Talpur, H. A., **M. Tariq** and P. Di Carlo (2025). "Climate Change Impact on River Runoff and Drought Characteristics in the Arno River Basin, Tuscany, Italy". (EMS-2025)

[2025]

Spatio-Temporal Variability of PFAS Compounds in Groundwater in the Veneto Region, Italy (2013–2023) 2025

Younas, A., E. Aruffo, P. Lanuti, **M. Tariq** and P. Di Carlo (2025). "Spatio-Temporal Variability of PFAS Compounds in Groundwater in the Veneto Region, Italy (2013–2023)". (EGU-2025)

[2025]
Three Decades of high-Resolution ERA5 Downscaling over the Italian domain: Validation and Applications in Hydrology, Meteorology, and Climate Analysis

Tariq, M., F. Cavalleri, S. Davolio, M. Brunetti, S. Camici, D. Mastrangelo and P. Stocchi (2025). "Three Decades of high-Resolution ERA5 Downscaling over the Italian domain: Validation and Applications in Hydrology, Meteorology, and Climate Analysis". (EGU-2025)

HONOURS AND AWARDS

[06/2020] Ministry of University and Research
PON Fellowship Awardee, PhD

[08/2012] COMSATS University Islamabad, Abbottabad Campus
Institute and Campus Gold Medalist in Bachelors Degree

[09/2008] COMSATS University Islamabad, Abbottabad Campus
University Scholarship

MANAGEMENT AND LEADERSHIP SKILLS

Departmental coordinator at the Department of Earth Sciences (2016)

COMSATS University Islamabad, Abbottabad Campus

- Overseeing departmental faculty meetings
- Coordinating with undergraduate students, addressing their daily concerns, and facilitating the resolution of issues
- Managing the onboarding process for new students and ensuring a smooth transition
- Organising students week in each semester

Departmental operating officer at the Department of Earth Sciences (2017 & 2020)

COMSATS University Islamabad, Abbottabad Campus

- Collaborating with faculty to streamline departmental operations
- Developing and implementing departmental policies and procedures
- Liaising with other departments to foster interdisciplinary collaboration
- Supervising departmental events and activities
- Serving as a point of contact for external stakeholders and fostering positive relationships
- Conducting regular assessments to enhance departmental efficiency and effectiveness.

SKILLS

Matlab / Bash / Data Assimilation / R / NetCDF / ArcGIS / QGIS / SWAT+ / Snow Cover Analysis / Hydrological Modeling / Data Analysis / Seismic Data Interpretaion / Wireline Log Interpratation / Trend Anlysis

CONFERENCES AND SEMINARS

[02/02/2026 – 05/02/2026] Jaca, Spain
Snow Hydrology 2026 Conference

[27/04/2025 – 02/05/2025] Vienna, Austria
European Geosciences Union

[12/08/2020] Islamabad, Pakistan
2nd Conference on Sustainability in Civil Engineering (CSCE'20)

[20/01/2014 – 21/01/2014] Serena Hotel Islamabad, Pakistan
International Conference on the Asian Monsoon and Climate Change

SOCIAL ACTIVITIES

Volunteerly helped over 500 persons to win PhD scholarships worldwide

Served as volunteer for fund raising for flood affecties in Pakistan (2010)

Organised welcome & farewell parties, literacy, debate and sports competetion in students week during Bachelors (2008-2012)

Served as volunteer in relief activities in Balakot-Earthquake Pakistan (2005)

LANGUAGE SKILLS

Mother tongue(s): Urdu

Other language(s):

English

LISTENING C2 **READING** C2 **WRITING** C2

SPOKEN PRODUCTION C2 **SPOKEN INTERACTION** C2

Italian

LISTENING A2 **READING** A2 **WRITING** A1

SPOKEN PRODUCTION A2 **SPOKEN INTERACTION** A2

Panjabi

LISTENING C1 **READING** B2 **WRITING** B2

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** B2

Hindko

LISTENING C2 **READING** C2 **WRITING** C2

SPOKEN PRODUCTION C2 **SPOKEN INTERACTION** C2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user