Curriculum Vitae – Mostafa Kiani Shahvandi

Dr. Mostafa Kiani Shahvandi
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RESEARCH INTERESTS

I am a geoscientist at the intersection of climate science and solid–Earth geophysics. More specifically, I analyze variations in terrestrial water storage, which encompasses all sources of water on land, including the cryosphere (polar ice sheets and mountain glaciers) and the hydrological components (vegetation, groundwater, reservoirs, rivers, lakes, and wetlands). I also investigate the sea-level change caused by terrestrial water storage as a result of continuous water mass redistribution between continents and the oceans. This occurs by, e.g., the melting of the Greenland and Antarctic ice sheets, which induces variations in the Earth's climate (climate science), as well as in the Earth's rotation, shape, and gravitational field (i.e., solid–Earth geophysics). I typically employ machine learning models for this purpose and apply robust uncertainty quantification techniques to investigate the problem in a probabilistic setting. My work positions me among the leading researchers on terrestrial water storage analysis, and my studies are widely featured in the news and media outlets around the world.

WORK EXPERIENCE

2025 – 2026	Swiss National Science Foundation (SNSF) Mobility Fellow (postdoc), University of Vienna, Austria
2024	Postdoc, ETH Zurich, Switzerland
2024	Intern in geophysics/geodesy, University of Cambridge, United Kingdom
2023	Intern in geophysics/geodesy, GFZ Helmholtz Center for Geosciences, Germany

EDUCATION

2024	PhD in geophysics/geodesy, ETH Zurich, Switzerland
2019	Master of Science in geophysics/geodesy, University of Tehran, Iran
2017	Bachelor of Science in surveying engineering (geophysics/geodesy/geomatics), University of Tehran, Iran

GRANTS AND FELLOWSHIPS

2025	SNSF Postdoc.Mobility Fellowship, University of Vienna, Austria (130 k CHF)
2024	ETH Zurich Doctoral.Mobility Fellowship, University of Cambridge, United Kingdom (10 k CHF)

TEACHING ACTIVITIES AND STUDENT SUPERVISION

2026	Machine Learning for Climate Science, University of Vienna, Austria
2025 – 2026	Numerical Methods, University of Vienna, Austria
2023 – 2024	Space Geodesy, ETH Zurich, Switzerland

2024	Supervision of two Master students in Machine Learning for Geodesy, ETH Zurich, Switzerland
2023	Supervision of a Bachelor student in Space Geodesy, ETH Zurich, Switzerland
2022	Supervision of two Master students in Space Geodesy, ETH Zurich, Switzerland

SCIENTIFIC AND OTHER LEADERSHIP ACTIVITIES

2023 – 2027	Organizer of the sessions on Machine Learning for Geodesy at International Union of Geodesy and Geophysics and the International Association of Geodesy
2023 –	Vice-Chair of the Joint Study Group on Theoretical Foundations of Machine and Deep Learning in Geodesy
2026	Outstanding Reviewer Prize Recipient of the American Geophysical Union
2021 – 2025	Member of the ETH AI Center
2020 –	Member of IEEE
2021 –	Member of the European Geoscience Union
2021 –	Member of the American Geophysical Union
2021 –	Member of the Society for Industrial and Applied Mathematics

KEY PUBLICATIONS

1. **Kiani Shahvandi, M.** (2026): A method for habitability analysis of planets with true polar wander, *The Astrophysical Journal*, 998(2): 259, https://doi.org/10.3847/1538-4357/ae3147.

2. **Kiani Shahvandi, M.**, Soja, B. (2026): Climate-induced length of day variations since the Late Pliocene, *Journal of Geophysical Research: Solid Earth*, 131(3), e2025JB032161, https://doi.org/10.1029/2025JB032161.

3. Gou, J., Salberg, A.-B., **Kiani Shahvandi, M.**, Tourian, M.J., Meyer, U., Boergens, E., Waldeland, A.U., Velicogna, I., Dahl, F., Jäggi, A., Schindler, K., Soja, B. (2026): Uncertainty quantification of satellite-based essential climate variables derived from deep learning, *Surveys in Geophysics*, https://doi.org/10.1007/s10712-025-09919-2.

4. **Kiani Shahvandi, M.**, Soja, B. (2025): Climate-induced polar motion: 1900–2100, *Geophysical Research Letters*, 52(5), e2024GL113405, https://doi.org/10.1029/2024GL113405.

5. **Kiani Shahvandi, M.**, Adhikari, S., Dumberry, M., Mishra, S., Soja, B. (2024): The increasingly dominant role of climate change on length of day variations, *Proceedings of the National Academy of Sciences*, 121(30), e2406930121, https://doi.org/10.1073/pnas.2406930121.

6. **Kiani Shahvandi, M.**, Adhikari, S., Dumberry, M., Modiri, S., Heinkelmann, R., Schuh, H., Mishra, S., Soja, B. (2024): Contributions of core, mantle and climatological processes to Earth's polar motion, *Nature Geoscience*, 17(7), 705–710, https://doi.org/10.1038/s41561-024-01478-2.

7. **Kiani Shahvandi, M.**, Noir, J., Mishra, S., Soja, B. (2024): Length of day variations explained in a Bayesian framework, *Geophysical Research Letters*, 51, e2024GL111148, https://doi.org/10.1029/2024GL111148.