Name: Zahra Mousavi

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EXPERIENCE

- Sep. 2021 – now **Associate Professor**, Department of Earth Science, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran
- Mar. 2014 – Sep. 2021 **Assistant Professor**, Department of Earth Science, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran
- Jan. 2015 - Dec. 2020 **Junior Associate**, ICTP (International Centre for Theoretical Physics), Trieste, Italy
- Feb. 2014 – Feb. 2015 **Head of Geodynamic division**, National Cartography Centre (NCC), Tehran, Iran
- Oct. 2010-Dec. 2013 **Junior researcher** (PhD thesis), Joseph Fourier University, Grenoble, France
- Dec. 2006 -Jan. 2009 **Head of Geodynamic division**, National Cartography Centre (NCC), Tehran, Iran
- Sept. 2004-Dec. 2006 **GPS / Geodynamic expert**, National Cartography Centre (NCC), Tehran, Iran

TEACHING EXPERIENCE

- **GPS** Master course, IASBS, Zanjan, Iran
- **Interferometric Synthetic Aperture Radar** Master course, University of Zanjan, Iran
- **Geodesy in Geophysics** Master course, IASBS, Zanjan, Iran
- **Applied geophysics (Gravity methods)** Master course, IASBS, Zanjan, Iran
- **Digital signal processing** Master course, IASBS, Zanjan, Iran
- **Processing GPS data using GAMIT/GLOBK** Workshop at Iranian Geophysical Society, Tehran, Iran
- **Processing InSAR data using StaMPS** Workshop at Iranian Geophysical Society, Tehran, Iran

EDUCATION

- **PhD.** Earth Science, ISTerre, Joseph Fourier University, Grenoble, France **Oct. 2010- Dec. 2013**

  Thesis title: *Characterization of active fault behavior in eastern Iran using a combined geodetic (GPS and InSAR) and tectonic approach; implications on seismic hazard*
  Supervisors: Andrea Walpersdorf

  Co-supervisors: Erwan Pathier and Richard Walker

- **M.Sc.** Seismology Engineering, MEEES program **Feb. 2009-Sept. 2010**
  Institute for Advanced Study/University of Pavia - ROSE School, Italy
  Joseph Fourier University, Grenoble, France
  Dissertation title: *Interseismic deformation of two major active faults in eastern Iran: contribution of satellite radar interferometry (InSAR)*
  Supervisor: Andrea Walpersdorf

  Co-supervisor: Erwan Pathier

- **M.Sc.** Geodesy, K.N.Toosi University, Tehran, Iran **Sept.2003-Dec. 2006**
  Dissertation title: *Regionalization and extraction of seismic moment rate in Iran based on GPS observations*
  Supervisor: Behzad Voosoghi

- **B.Sc.** Geomatic Engineering, Tabriz University, Tabriz, Iran **Sept. 1998-Sept. 2002**

  Dissertation title: *Independent triangulation model*

- **High School Diploma**. Mathematics and Physics, Farzanegan, SAMPAD, Zanjan, Iran **Jun. 1998**

RESEARCH ACTIVITIES

- **Journal article: (* student)**

  - Ghods, A., Jafari, M.*, Braunmiller, J., Aflaki, M., Bergman, E., **Mousavi, Z.**, Farzaneghan, E. and Walpersdorf, A., **2025**. The 2020 Qotur earthquake doublet and its implication for the geodynamics of Northwestern Iran. *Tectonophysics*, p.230899.
  - **Mousavi, Z.,** Talebian, M., Amiri, M.*, Walker, R.T., Marshall, N. and Walpersdorf, A., **2025**. Constancy of geologic and geodetic fault slip rates across the Arabia-Eurasia collision revealed through two decades of observation. *Tectonics*, *44*(3), p.e2024TC008380.

- Mohammadnia, M.*, Vajedian, S., **Mousavi, Z.** and Aflaki, M., **2025**. Surface deformation dynamics of Sierra Negra's 2018 eruption: insights from InSAR, optical flow and pixel offset tracking. *Geophysical Journal International*, *240*(3), pp.1773-1789.
- Amiri, M.*, Walpersdorf, A., **Mousavi, Z.**, Khorrami, F., Pathier, E., Samsonov, S.V., Saadat, S.A., Nankali, H.R. and Sedighi, M., **2024**. Constraints on the 2013 Saravan intraslab earthquake using permanent GNSS, InSAR and seismic data. *Geophysical Journal International*, *239*(1), pp.155-172.

- Tooshe, Z.*, Rezaei, A., **Mousavi, Z.**, Amiri, M. and Einlou, F., **2024**. Zanjanrood confined aquifer extent and its hydraulic connection with surface water and the shallow aquifer: Insights from InSAR and hydrogeology. *Hydrogeology*, *8*(2), pp.80-93.

- Banimahdi Dehkordi, M.J.*, **Mousavi, Z.**, Shabanian, E., Abbasi, M. and Ghods, A., **2024**. Constraint on the active tectonics of the Alborz (Iran) using geodetic data. *Iranian Journal of Geophysics*, 18(2), pp.55-76.

- Ebrahimi, S.*, Rezaei, A. and **Mousavi, Z.**, **2024**. Investigating the Subsidence of Abbas Plain in Ilam during Two Periods of Groundwater Level Decline and Rise Using Radar Interferometry Technique. Hydrogeology, 8(2), pp.158-169.

- Alipour, A.*, Motaghi, K., **Mousavi, Z.**, Cheraghi, H. and Saadat, S.A., **2024**. Adopting normalized full gradient method for regional-scale gravity modelling: A case study for Northwestern Iran. Geophysical Prospecting, 72(2), pp.833-856.

- Jafari, M.*, **Mousavi, Z.** and Ghods, A., **2023**. Coseismic slip model for 2020 Ghotor earthquake based on InSAR DATA. *Journal of Geomatics Science and Technology*, *13*(1), pp.45-54.

- Jafari, M.*, Aflaki, M., **Mousavi, Z.**, Walpersdorf, A. and Motaghi, K., **2023**. Coseismic and post-seismic characteristics of the 2021 Ganaveh earthquake along the Zagros foredeep fault based on InSAR data. *Geophysical Journal International*, 234(2), pp.1125-1142.

- Vajedian, S., Aflaki, M., **Mousavi, Z.**, Ghods, A., Walker, R. and Maurer, J., **2023**. Seismotectonic modeling of the 2017 Hojedk (Kerman) earthquake sequence from joint inversion of InSAR and offset tracking techniques. *Remote Sensing of Environment*, 288, p.113461.

- Masoumi, Z., **Mousavi, Z.** and Hajeb, Z.8, **2022**. Long-term investigation of subsidence rate and its environmental effects using the InSAR technique and geospatial analyses. *Geocarto International*, 37(24), pp.7161-7185

- Shahbazi, S.*, **Mousavi, Z**. and Rezaei, A., **2022**. Constraints on the hydrogeological properties and land subsidence through GNSS and InSAR measurements and well data in Salmas plain, northwest of Urmia Lake, Iran. *Hydrogeology Journal*, *30*(2), pp.533-555.

- Aflaki, M., **Mousavi, Z. 2021**. Interaction between the far-field stress and crustal boundary faults in the kinematics of active deformation around the Lut Block, Eastern Iran. *Tectonophysics*, p.229053.

- Walker, R.T., Bezmenov, G., Carolin, S., Dodds, N., Jackson, J.A., Mirzin, R., **Mousavi, Z.**, Rhodes, E.J. **2021**. Slip-Rate on the Main Kopetdag (Kopeh Dagh) Strike-Slip Fault, Turkmenistan, and the Active Tectonics of the South Caspian. *Tectonics*, p.e2021TC006846.

- Ajorlou, N.*, Hollingsworth, J., **Mousavi, Z**, Ghods, A., Masoumi, Z. **2021**. Characterizing near-field surface deformation in the 1990 Rudbar earthquake (Iran) using optical image correlation. *Geochemistry, Geophysics, Geosystems*, p.e2021GC009704.

- Mohammadnia, M. H.*, Najafi, M., & **Mousavi, Z**. **2021**. InSAR constraints on the active deformation of salt diapirs in the Kalut basin, Central Iran. *Tectonophysics*, 228860.

- **Mousavi, Z.**, Fattahi, M., Khatib, M., Talebian, M., Pathier, E., Walpersdorf, A., ... & Walker, R. T. **2021**. Constant slip-rate on the Doruneh strike-slip fault, Iran, averaged over Late Pleistocene, Holocene, and decadal timescales. *Tectonics*, e2020TC006256.

- Amiri, M.*, **Mousavi, Z.**, Atzori, S., Khorrami, F., Aflaki, M., Tolomei, C., Motaghi, K. and Salvi, S., 2020. Studying postseismic deformation of the 2010–2011 Rigan earthquake sequence in SE Iran using geodetic data. *Tectonophysics*, *795*, p.228630.

- Babaee, S.*, **Mousavi, Z.**, Masoumi, Z., Malekshah, A.H., Roostaei, M. and Aflaki, M., **2020**. Land subsidence from interferometric SAR and groundwater patterns in the Qazvin plain, Iran. International Journal of Remote Sensing, 41(12), pp.4778-4796.

- Rezaei, A., **Mousavi, Z.**, Khorrami, F. and Nankali, H., **2020.** Inelastic and elastic storage properties and daily hydraulic head estimates from continuous global positioning system (GPS) measurements in northern Iran. Hydrogeology Journal, 28(2), pp.657-672.

- Hajeb Z.*, **Mousavi Z.**, Masoumi Z., Rezaei A., **2019**. Investigation of Qom subsidence using InSAR and aquifer hydraulic characterization, Scientific Quaterly Journal, *Geosciences*, 114, p. 251- 258.

- Rezaei, A. and **Mousavi, Z.**, 2019. Characterization of land deformation, hydraulic head, and aquifer properties of the Gorgan confined aquifer, Iran, from InSAR observations. *Journal of Hydrology*, 579, p.124196.

- Aflaki, M., **Mousavi, Z**., Ghods, A., Shabanian, E., Vajedian, S. and Akbarzadeh, M., **2019**. The 2017 M w 6 Sefid Sang earthquake and its implication for the geodynamics of NE Iran. *Geophysical Journal International*, 218(2), pp.1227-1245.

- Khorrami, F., Vernant, P., Masson, F., Nilfouroushan, F., **Mousavi, Z**., Nankali, H., Saadat, S.A., Walpersdorf, A., Hosseini, S., Tavakoli, P. and Aghamohammadi, A., **2019**. An up-to-date crustal deformation map of Iran using integrated campaign-mode and permanent GPS velocities. *Geophysical Journal International*, 217(2), pp.832-843.

- Vajedian, S., Motagh, M., **Mousavi, Z.**, Motaghi, K., Fielding, E., Akbari, B., Wetzel, H.U. and Darabi, A., **2018**. Coseismic deformation field of the MW 7.3 12 November 2017 Sarpol-e Zahab (Iran) earthquake: A decoupling horizon in the northern Zagros Mountains inferred from InSAR observations. *Remote Sensing*, 10(10), p.1589.

- Amiri, M.*, **Mousavi, Z.**, Motaghi K., **2018**. Studying post-seismic deformation 2010 Mw 6.5 Rigan earthquake in SW Iran using InSAR, *Iranian Journal of Geophysics*, Vol 12, No 2.

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- Aghajany, S.H.*, Voosoghi, B. and **Mousavi, Z.**, **2015**. Impact of Digital Elevation Models in Accuracy of InSAR Displacement Velocity Fields. *Journal of Geomatics Science and Technology*, 4(4), pp.123-138.

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- **Mousavi, Z.**, Walpersdorf, A., Walker, R.T., Tavakoli, F., Pathier, E., Nankali, H.R.E.A., Nilfouroushan, F. and Djamour, Y., **2013**. Global Positioning System constraints on the active tectonics of NE Iran and the South Caspian region. *Earth and Planetary Science Letters*, 377, pp.287-298.

- **Mousavi, Z**., Vosoughi B., Determination and regionalization of geodetic seismic moment rates, case study: National geodynamic network of Iran, *Journal of the college of engineering*, Tehran University, Volume 42, Number 3, Spring **2008**.

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- **Mousavi, Z.**, Jafari, M., Aflaki, M., Walpersdorf, A. and Motaghi, K., **2023**, May. InSAR constraints on coseismic and postseismic deformation of the 2021 Ganaveh earthquake along the Zagros Foredeep fault. In EGU General Assembly Conference Abstracts (pp. EGU-6274).
- Amiri, M., Walpersdorf, A., Pathier, E. and **Mousavi, Z., 2023**, May. Seven years of postseismic deformation following Mw 7.7 2013 Saravan intra-slab earthquake from InSAR time series. In EGU General Assembly Conference Abstracts (pp. EGU-6612).
- Walpersdorf, A., Amiri, M., Pathier, E., **Mousavi, Z**., Khorrami, F. and Samsonov, S.V., **2022**, May. Slip model of the 2013 April 16 Mw 7.7 Saravan intra-slab earthquake (Makran subduction zone) derived from InSAR, GPS, and Teleseismic P-wave modeling. In EGU General Assembly Conference Abstracts (pp. EGU22-7507).
- **Mousavi, Z**., Walpersdorf, A., Pathier, E. and Walker, R., **2022**, May. InSAR constraints on interseismic slip-rate of the Esfarayen fault, northeastern Iran. In EGU General Assembly Conference Abstracts (pp. EGU22-7630).
- Dodds, N., Daout, S., Walker, R., **Mousavi, Z**. and Parsons, B., **2021**, December. Imaging the lateral extrusion of the South Caspian Basin with Sentinel-1 InSAR time-series. In AGU Fall Meeting Abstracts (Vol. 2021, pp. G24A-08).
- Walpersdorf, A., Khorrami, F., **Mousavi, Z.**, Pathier, E., Tavakoli, F., Walker, R., Nankali, H.R., Doin, M.P., Abdolreza Saadat, S. and Djamour, Y., **2021**, April. Spatio-temporal slip rate variability of the Doruneh fault (eastern Iran) from dense GNSS and SENTINEL data and a tectonic study. In EGU General Assembly Conference Abstracts (pp. EGU21-2524).
- Khorrami, F., Walpersdorf, A., **Mousavi, Z.,** Pathier, E., Nankali, H., Sa'adat, R., Walker, R., Doin, M.P., Tavakoli, F. and Djamour, Y., **2020**, May. How to reveal the present-day mechanism of the 600 km long Doruneh fault in eastern Iran?. In EGU General Assembly Conference Abstracts (p. 11110).
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- R. Rezaei, **Z. Mousavi**, "Aquifer storativity and hydraulic head estimation from InSAR", Trigger, Zanjan, 2019
- N. Ajorlou, J. Hollingsworth, **Z. Mousavi**, A. Ghods, Z. Masoumi, "Characterizing surface deformation in the 1990 Rudbar earthquake (Iran) using optical image correlation", Trigger, Zanjan, 2019.
- M. J. Banimahdi Dehkordi, A. Ghods, **Z. Mousavi**, E. Shabanian, and M. Abbasi, "Seismotectonics of Central Alborz", Trigger, Zanjan, 2019.
- **Z.Mousavi**, "About 12 Novembre 2017 Sarpol-e-Zahab Earthquake", Trigger, Tehran, Iran, 2018.
- N. Ajorlou, J. Hollingsworth, **Z. Mousavi**, A. Ghods, Z. Masoumi, "Characterizing surface deformation in the 1990 Rudbar earthquake (Iran) using optical image correlation, Trigger, Tehran, Iran, 2018.
- S. Vajedian, M. Motagh, **Z. Mousavi**, K. Motaghi and E. Fielding, "Space geodetic investigation of the coseismic deformation associated with 12 December 2017 Mw 6.2 Hojdek and 12 November 2017 Mw 7.3 Sarpol-e Zahab Iran earthquakes", 19th General Assembly of Wegener, Grenoble, France, 2018.
- S. Vajedian, **Z. Mousavi**, M. Motagh and A. Hojati, "Combining SAR Interferometry and offset tracking methods to measure near field coseismic deformation; application to the 12 December 2017 Mw 6.2 Hojedk earthquake in Iran", Geophysical Research Abstracts, Vol. 20, EGU2018-19135-2, 2018.
- S. Babaee, **Z. Mousavi**, Z. Masoumi, A. Hojati, M. Rostaei, M. Aflaki, Land subsidence monitoring in Qazvin plain using Synthetic Aperture Radar interferometry. Tehran, Trigger, Tehran, Iran, 2017.
- M. Amiri, **Z. Mousavi**, C. Tolomei, S. Atzori, K. Motaghi, S. Salvi, Coseismic And Post-seismic Displacements Associated With 2010 Mw 6.5 Rigan Earthquake In SE Iran Revealed By Space-borne Radar Interferometry Observations, Fringe, Helsinki, Finland, 2017.
- **Z. Mousavi**, GPS and earthquake hazard in Iran, Earthquake Science and Hazard in Central Asia, Almaty, Kazakhstan, 7-9 September, 2016.
- N. Ahmadi**, Z. Mousavi ,** Z. Masoumi**,** Khoramdarreh Subsidence Estimation Using Persistent Scatterer Interferometry, 34th National and the 2nd International Geosciences Congress, Tehran, Iran, 22-24 February, 2016.
- **Z. Mousavi,** Pathier, E., Walker, R.T., Walpersdorf, A., Tavakoli, F., Nankali, H.,Sedighi. M., Doin, M-P., Measurement of Interseismic strain accumulation across the Shahroud Fault System by Interferometric Synthetic Aperture Radar, International Conference and School on Structure, Tectonics and Earthquakes in the Alborz-Zagros-Makran Region, Tehran, Iran, 22-31 May, 2015.

- **Z. Mousavi,** A. Walpersdorf, R. Walker, F.Tavakoli, H. Nankali, E. Pathier, F.Tavakoli**,** Characterization of active fault behavior in eastern Iran using geodetic approach, 32nd National & first international Geosceines Congress, Tabriz, Iran, Feburary, 2014.
- **Z. Mousavi,** A. Walpersdorf, R. Walker, E. Pathier, F.Tavakoli, Geodetic observations from North Eastern Iran, G52A-08, Fall Meeting AGU , San Francisco,3-7 Dec., 2012.
- **Z. Mousavi,** E.Pathier, A. Walpersdorf,I.Manighetti,M.Vergnolle,F. Tavakoli and H. Nankali, InSAR Time Series Analysis of Interseismic Deformation in Eastern Iran, Vol. 14, EGU2012-9846, EGU General Assembly, 2012.
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- F. Khorrami, **Z. Mousavi,** A.Walpersdorf, H. Nankali, Y.Djamour, M.Sedighi, F.Tavakoli, Capacities of the Iranian permanent GPS network foratmospheric monitoring, Vol. 10, EGU2008-A-06993, EGU General Assembly 2008.
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- **Z**. **Mousavi,** F.Khorrami, Determination of wet component in troposphere by GPS signals in IPGN (Iranian Permanent GPS Network), Geomatic Conference, National Cartography Center, Iran, 2007.
- B. Vosoughi, **Z. Mousavi**, Extraction and Regionalization of Geodetic Seismic Moment Rates based on GPS Derived velocity field of Iranian Geodynamic Network,5th Annual International Conference and Exhibition on Geographical Information Technology and Application, Map Asia 2006.
- B. Vosoughi, **Z. Mousavi**, Regionalization of hazard Seismicity on Alborz based on seismic moment rate derived from GPS", Geomatic 85, NCC, Iran,7 May 2006.
- **Z. Mousavi**, B. Vosoughi, Determining seismic moment rate and it's Regionalization in Iran based on GPS measurement", 7th International Congress on Civil Engineering, TarbiatModares University, Tehran, Iran, 8-10 may 2006.
- **Z. Mousavi**, B. Vosoughi, Seismic Moment Rate and its Role in Earthquake Research", Geomatic 84, NCC, Iran, NCC, Iran 2005.

LANGUAGE & COMPUTER SKILLS

- **Persian** : Native **English:** Fluent **French** : Intermediate **Azeri** : Mother Language
- **Programming**: FORTRAN, MATLAB, Perl
- **Visualisation& Office Works:** Adobe Illustrator, GMT, Latex, Word
- **Scientific Softwares:** GAMIT/GLOBK, ROIPAC, NSBAS Chain, ER Mapper, DEFNOD, StaMP, Sesarray package (Geopsy, Dinver), Sardin

HONORS

- **ICTP (International Centre for Theoretical Physics):** Junior Associate of the Centre from 1 January 2015 until 31 December 2020
- **Doctorate School scholarship (ED TUE):** One month of researchvisiting of Oxford university, UK, October 2012
- **PhD scholarship from French education ministry:** Tyears , Joseph Fourier University, 2010
- **MEEES's Scholarship:** One year of master course of Engineering Seismology, European community, 2008
- **Scholarship of French Embassy in Tehran:** 2 months of research visiting of ISTerre, November 2007