

CURRICULUM VITAE

Personal Information

Surname: Motaghi
First name: Seyed Khalil
Gender: Male
Date of birth: September 21th, 1981
Nationality: Iranian

Position

Associate professor of Seismology, Department of Earth Sciences, Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran, 2012-current

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Education

➤ **Ph.D. (Seismology)**

International Institute of Earthquake Engineering and Seismology (IIEES), Tehran, Iran. September 2007 – February 2012.

Thesis title: Lithosphere structure of northeast Iran continental collision zone

Supervisor: Dr. M. Tatar (IIEES)

Co-supervisors: Dr. H. Shomali (Department of Earth Sciences, Uppsala University),
Dr. A. Kaviani (Johann Wolfgang Goethe-Universität, Frankfurt)

➤ **M. Sc. (Geophysics)**

Institute for Advanced Studies in Basic Sciences (IASBS), Zanjan, Iran. January 2005- June 2007.

Thesis title: Determination of Ground Motion Attenuation Law in the Tehran Region and Calculation of a Magnitude M_I Catalogue

Supervisors: Dr. A. Ghods (IASBS), Dr. H. R. Siahkoohi (Institute of Geophysics, University of Tehran)

➤ **B. S. (Applied physics)**

Department of Physics, Shiraz University, Shiraz, Iran. Sep. 2000 - June 2004

B. S. project: Finding the Surface Temperature of the Stars by Photometry

Supervisor: Prof. Dr. N. Riazi (Biruni Observatory, Shiraz University)

Research Interests

My research addresses how convergence is accommodated in the Zagros continental collision zone in both crustal and lithospheric scales. The same question is going to be addressed in the Makran subduction zone. The tools I employ are list below:

1. Modeling of P and S receiver functions
2. Travel time, Surface wave, and ambient noise tomography
3. Modeling of gravity data

Awards

- Rank 64 among 100 top scientists of 2022 in Iran
- Rank 37 among 100 top scientists of 2021 in Iran
- Junior Associate member of *International Center of Theoretical Physics (ICTP)*, Italy, 2015-2022.
- Annual award of Iranian national academy of Science in Earth Sciences, 2017.

Publications

A) In international refereed journals

1. Alipour, A., **Motaghi, K.**, Mousavi, Z., Cheraghi, H., Saadat, S. A. (2023). Adopting normalized full gradient method for regional scale gravity modeling: A case study for NW Iran, *Geophysical Prospecting*, in press. <https://doi.org/10.1111/1365-2478.13433>
2. Jafari, M., Aflaki, M., Mousavi, Z., Walpersdorf, A., & **Motaghi, K.** (2023). Coseismic and post-seismic characteristics of the 2021 Ganaveh earthquake along the Zagros foredeep fault based on InSAR data. *Geophys. J. Int.*, 234(2), 1125-1142.
3. Priestley, K., Sobouti, F., Mokhtarzadeh, R., A Irandoust, M., Ghods, R., **Motaghi, K.**, Ho, T. (2022). New Constraints for the On-Shore Makran Subduction Zone Crustal Structure. *Journal of Geophysical Research: Solid Earth*, 127(1), e2021JB022942.
4. Arvin, S., Sobouti, F., Priestley, K., Ghods, A., **Motaghi, K.**, Tilmann, F., & Eken, T. (2021). Seismic anisotropy and mantle deformation in NW Iran inferred from splitting measurements of SK (K) S and direct S phases. *Geophys. J. Int.*, 226(2), 1417-1431.
5. Abdulnaby, W., **Motaghi, K.**, Shabanian, E., Mahdi, H., Al-Shukri, H., Gök, R. (2020). Crustal structure of the Mesopotamian Plain, east of Iraq. *Tectonics*, 39, e2020TC006225. <https://doi.org/10.1029/2020TC006225>.
6. Amiri, M., Mousavi, Z., Atzori, S., Khorrami, F., Aflaki, M., Tolomei, C., **Motaghi, K.**, Salvi, S. (2020). Studying postseismic deformation of the 2010–2011 Rigan earthquake sequence in SW Iran using geodetic data. *Tectonophysics*, 228630.
7. Maheri-Peyrov, M., Ghods, A., Donner, S., Akbarzadeh, M., Sobouti, F., **Motaghi, K.**, Hasanzadeh, M., Mortezaejad, G., Talebian, M., Chen, L. (2020). Upper crustal structure of NW Iran revealed by 3D Pg velocity tomography, *Geophys. J. Int.*, 222(2), 1093-1108.

8. **Motaghi, K.**, Shabaniyan, E., Nozad-Khalil, T., (2020). Deep structure of the western coast of the Makran subduction zone, SE Iran, *Tectonophysics*, 776, 228314.
<https://doi.org/10.1016/j.tecto.2019.228314>
9. Dashti, F. Lucente, F.P., **Motaghi, K.**, Bianchi, I., Najafi, M., Govoni, A., Shabaniyan, E. (2020). Crustal scale imaging of the Arabia – Central Iran collision boundary across the Zagros suture zone, west of Iran. *Geophys. Res. Lett.*, 47(8).
<https://doi.org/10.1029/2019GL085921>
10. Rahmani, M., **Motaghi, K.**, Ghods, A., Sobouti, F., Talebian, M., Ai, Y., Chen, L. (2019). Deep velocity image of the north Zagros collision zone (Iran) from regional and teleseismic tomography. *Geophys. J. Int.*, 219(3), 1729-1740.
11. Mahmoodabadi, M., Yaminifard, F., Tatar, M., Kaviani, A., **Motaghi, K.** (2019). Upper mantle velocity structure beneath the Zagros collision zone, Central Iran and Alborz from non-linear teleseismic tomography. *Geophys. J. Int.*, 218(1), 414-428.
12. **Motaghi, K.**, Ghods, A., Sobouti, F., Shabaniyan, E., Mahmoodabadi, M., Priestley, K., (2018). Lithospheric seismic structure of the West Alborz - Talesh ranges, Iran, *Geophys. J. Int.*, 215(3), 1766-1780.
13. Vajedian, S., Motagh, M., Mousavi, Z., **Motaghi, K.**, Fielding, E., Akbari, B., Wetzel, H.U., 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), 1589.
14. Rastgoo, M., Rahimi, H., **Motaghi, K.**, Shabaniyan, E., Romanelli, F., Panza, G.F., (2018). Deep structure of the Alborz Mountains by joint inversion of P receiver functions and dispersion curves, *Physics of the Earth and Planetary Interiors*, 277, 70-80.
15. Sadeghi-Bagherabadi, A., Sobouti, F., Ghods, A., **Motaghi, K.**, Talebian, M., Chen, L., Jiang, M., Ai, Y., He, Y., (2018). Upper Mantle Anisotropy and Deformation beneath the Major Thrust-and-Fold Belts of Zagros and Alborz and the Iranian Plateau, *Geophys. J. Int.*, 214, 1913–1918.
16. **Motaghi, K.**, Shabaniyan, E., Kalvandi, F., (2017). Underplating along the northern portion of the Zagros suture zone, Iran. *Geophys. J. Int.* 210 (1), 375–389.
17. **Motaghi, K.**, Shabaniyan, E., Tatar, M., Cuffaro, M. & Doglioni, C., (2017). The south Zagros suture zone in teleseismic images, *Tectonophysics*, 694, 292–301.
18. Bavali, K., **Motaghi K.**, Sobouti, F., Ghods, A., Abbasi, M., Priestley, K., Mortezaejad, M., Rezaeian, M. (2016) Lithospheric Structure beneath NW Iran Using Regional and Teleseismic Travel-time Tomography, *Physics of the Earth and Planetary Interiors*, 253, 97-107.
19. **Motaghi, K.**, Tatar, M., Priestley, K., Romanelli, F., Doglioni, C., Panza, G.F. (2015) The deep structure of the Iranian Plateau, *Gondwana Research*, 28 (1), 407-418
20. **Motaghi, K.**, Tatar, M., Shomali, H., Kaviani, A., Priestley, K. (2012) High resolution image of upper mantle beneath NE Iran continental collision zone, *Physics of the Earth and Planetary Interiors*, Vol. 208–209, p. 38–49.

21. **Motaghi, K.**, Ghods, A. (2012) Attenuation of Ground Motion Spectral Amplitudes and its Variations across the Central Alborz Mountains, *Bull. seism. Soc. Am*, 102(4), 1417–1428.
22. **Motaghi, K.**, Tatar, M., Priestley, K. (2012) Crustal thickness variation across the northeast Iran continental collision zone from teleseismic converted waves, *J. Seismology*, 16: 253-260.
23. **Motaghi, K.**, Hessami, K., Tatar, M. (2010) Pattern recognition of major asperities using local recurrence time in Alborz Mountains, northern Iran, *J. Seismology*, 14: 787-802.
24. H. Rahimi, **Motaghi, K.**, Mukhopadhyay, S., Hamzehloo, H. (2010) Variation of Coda Wave Attenuation in Alborz Region and Central Iran, *Geophys. J. Int.*, 181: 1643–1654.

B) In national refereed journals (in Persian with English abstract)

1. Zeynoddini Meymand, R., **Motaghi, K.**, Shabnian, E., (2023). Surface wave tomography of the Makran subduction zone, . Iranian Journal of Geophysics, *in press*. doi: 10.30499/ijg.2023.395954.1515
2. Alipour, A., **Motaghi, K.**, Mousavi, Z. (2023). Normalized Full Gradient Study of Bouguer Gravity Anomaly Profile of NorthWestern Iran, *Earth and Space Physics*, 49(2), 407-421.
3. Zarunizadeh, Z., **Motaghi, K.**, & Movaghari, R. (2022). Investigation of shear wave velocity model beneath east of Iran from Rayleigh waves tomography. *Iranian Journal of Geophysics*, 16(3), 161-181.
4. Ghorbanalizadeh, V., **Motaghi, K.**, Sobouti, F. (2020). Lithospheric Structure of NW Iran revealed by S Receiver Functions, *Earth and Space Physics*, 46(2), 265-276.
5. Andayeshgar, S., **Motaghi, K.**, Rezaeian, M. (2020). A new method for quality factor tomography: a case study in NW Iran, *J. Res. Applied Geophysics*, 6(1), 145-154.
6. Jamalreyhani, M., Ghods, A., **Motaghi, K.**, Shabnian, E., Talebian, M., Chen, L. (2019) Seismicity in the Lurestan Arc of Zagros Simply Folded Belt, *Geoscience*, 113, 13-24.
7. Ghasemini, R., **Motaghi, K.**, Ghods, A., Talebian, M., Chen, L. (2018) Attenuation of Ground-Motion Spectral Amplitudes at short hypocentral distances, *Iranian J. Geophysics*, 12(3): 87-106.
8. Amiri, M., Mousavi, Z., **Motaghi, K.** (2018) Studying post-seismic deformation 2010 MW 6.5 Rigan earthquake in the SW Iran using InSAR, *Iranian J. Geophysics*, 12(2): 96-108.
9. Nozad-Khalil, T., **Motaghi, K.**, (2017) Geometry of deep velocity discontinuities in the coastal Makran using receiver functions, *Iranian J. Geophysics*, 11(3): 157-173.
10. Zarunizadeh, Z., **Motaghi, K.**, Rahimi, H., Ghods, A., (2017) Estimation of Coda wave attenuation in NW Iran, *Iranian J. Geophysics*, 11(1): 156-170.
11. Feizaghaee, F., **Motaghi, K.**, Tatar, M., Ghods, A., Moradi, A., (2017) 2D local earthquake tomography of P-wave velocity in the upper crust of NW Iran, *Iranian J. Geophysics*, 11(1): 33-48.

12. Davodian, R, **Motaghi, K.**, Sobouti, F., Rahimi, H., Ghods, A., (2017) Inversion of Rayleigh waves group velocity to shear wave velocity structure for the north-west of Iran, *Journal of the Earth and Space Physics*: 43(1), 1-13.
13. **Motaghi, K.**, Zarunizadeh, Z., Ghods, A., (2017) Attenuation of ground-motion spectral amplitudes in the NW Iran, *Iranian J. Geophysics*, 10(4): 128-141.
14. Kalvandi, F., **Motaghi, K.**, Shabani, E., (2017) Lithosphere structure in the north Zagros collision revealed by joint inversion of P receiver function and surface wave dispersion, *Iranian J. Geophysics*, 10(4): 48-61.
15. **Motaghi, K.**, Hessami, K., Mostafazadeh, M. (2012) The Major Asperities of the Alborz tectonic region and finding the maximum probable location of future large earthquake. *Geoscience* , 85: 123-132.
16. **Motaghi, K.**, Ghods, A., Siahkoobi, H.R. (2011) Determination of ground motion attenuation relationship in the Tehran region, *Geoscience*, 81: 25-32
17. **Motaghi, K.**, Ghods, A., Siahkoobi, H.R. (2010) Visual Presentation of Seismic Attenuation Curves in the Tehran Region and Moho Thickness Estimation through the Curves, *J. Earth and Space Physics*, 36 (2): 1-16.
18. **Motaghi, K.**, Ghods, A., Siahkoobi, H.R. (2009) Calculation of magnitude M_I for earthquakes in the Tehran region. *Iranian J. Geophysics*. 3(2): 1-11.

Field experience

- Installing the GURALP seismometers in four temporary passive seismic profiles in Iran. These data were gathered by our department, independently.
- Collaboration with Chinese Academy of Sciences and Geological Survey of Iran in installing 63 seismometers in north Zagros collision, Iran.