Zelong Guo

GFZ German Research Centre for Geosciences, Potsdam, Germany

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Basic Information

- Date of Birth: 28.09.1993
- Place of Birth: Jinan City, Shandong Province, China

More information and news could be found at my Personal webpage and Github page.

Research Interest

- Earthquake cycle deformation modeling (For the PhD, I mainly focus on postseismic modeling with InSAR)
- Geodetic techniques (InSAR and GNSS)

Education

GFZ German Research Centre for Geosciences *Potsdam, DE*
PhD in Geodesy/Geophysics (also at **Leibniz University Hannover, IPI**) *Oct. 2020 – present*

- **Institute:** Section 1.4 Remote Sensing and Geoinformatics
- **Advisor:** Prof. Mahdi Motagh
- **Coursework:** Remote Sensing, Positioning and Navigation, Image Analysis, GIS

Wuhan University *Wuhan, CN*
Master in Geophysics *Sep. 2017 – Jul.2020*

- **Institute:** School of Geodesy and Geomatics
- **Advisor:** Prof. Yangmao Wen
- **Coursework:** Geophysical Inversion Theory, Geophysics and Geodesy, Advanced Seismology

Shandong University of Science and Technology *Qingdao, CN*
Bachelor in Geodesy *Sep. 2012 – Jul.2016*

- **Institute:** School of Geomatics
- **Coursework:** Geodesy, Adjustment, GPS, Remote Sensing

Code Packages

InSAR and Earthquake Modeling:

- **S1_TS_proc:**
  Some *Shell* scripts based on GAMMA software for automatic batch processing InSAR data, now only Sentinel-1 data supported.
- **Dislocation:**
  A *Python C Extension* for calculating deformation, stress and strain with rectangular and triangular dislocations [still under developing...]
- **Seislip:**
  Python codes for co- and post-seismic modeling [under developing ...]

Other **productivity tools** like **Nvim** etc please find them at my Github page.

Publications

Publications as First or Corresponding Authors:

1. ***Guo, Z.***, M. Base, and M. Motagh (2024). Ramp-Flat and Splay Faulting Illuminated by Frictional Afterslip Following the 2017 Mw 7.3 Sarpol-e Zahab Earthquake, *Seismological Research Letter*, 1-14, doi:10.1785/0220230425

2. ***Guo, Z.***, Motagh, M., Hu, J.-C., Xu, G., Haghighi, M. H., Bahroudi, A., et al. (2022). Depth-varying Friction on a Ramp-flat Fault Illuminated by ∼3-year InSAR Observations Following the 2017 Mw 7.3 Sarpol-e Zahab earthquake. ***Journal of Geophysical Research: Solid Earth***, 127, doi: 10.1029/2022JB025148
3. ***Guo, Z.***, Wen, Y., Xu, G., Wang, S., Wang, X., Liu, Y., and Xu, C. (2019). Fault Slip Model of the 2018 Mw 6.6 Hokkaido Eastern Iburi, Japan, Earthquake Estimated from Satellite Radar and GPS Measurements. *Remote Sensing*, 11(14), doi:10.3390/rs11141667.
4. Wen, Y., ***Guo, Z.***, Xu, C., Xu, G., and Song, C. (2019). Coseismic and Postseismic Deformation Associated with the 2018 Mw 7.9 Kodiak, Alaska, Earthquake from Low-Rate and High-Rate GPS Observations. *Bulletin of the Seismological Society of America*, 109(3), 908–918, doi:10.1785/0120180246.

Publications as Co-Authors:

1. Peng, M., Motagh, M., Lu, Z., Xia, Z., ***Guo, Z.***, Zhao, C. and Liu, Q. (2023). Characterization and prediction of InSAR-derived ground motion with ICA-assisted LSTM model. *Remote Sensing of Environment*, 301,113923, doi:10.1016/j.rse.2023.113923
2. Xu, G., Wen, Y., Yi, Y., ***Guo, Z.***, Wang. L., and Xu, C. (2023). Geodetic constraints of the 2015 Mw6.5 Alor, East Indonesia earthquake: a strike-slip faulting in the convergent boundary. *Geophysical Journal International*, 235(1), doi:10.1093/gji/ggad211
3. Zhang, Y., Xu, C., Fang, J. and ***Guo, Z.*** (2021). Focal mechanism inversion of the 2018 Mw7.1 Anchorage earthquake based on high-rate GPS observation. *Geodesy and Geodynamics*, 12(6), 381-391, doi:10.1016/j.geog.2021.09.004

Conferences and Presentations

1. ***Guo, Z.***, Motagh, M., Baes, M. Structural Complexity Revealed by Frictional Afterslip Models and InSAR Observations Following the 2017 Mw 7.3 Sarpol-e Zahab (Iran-Iraq) Earthquake: Insights from Numerical Modeling, *EGU General Assembly 2024*, Vienna, Austria, 2024
2. ***Guo, Z.***, Motagh, M. Fault Geometry and Frictional Afterslip Following the 2017 Mw 7.3 Sarpol-e Zahab (Iran-Iraq) Earthquake: Insights form InSAR and Finite Element Models, *20th Wegener Assembly 2023*, Sousse, Tunisia, 2023
3. ***Guo, Z.***, Motagh, M. Frictional Afterslip Modeling of the 2017 Mw 7.3 Sarpol-e Zahab Earthquake Using InSAR Observations and 2-D Finite Element Method, *Fringe 2023*, Leeds University, Leeds, UK, 2023.
4. ***Guo, Z.***, Motagh, M., Hu, J.-C., Xu, G., Haghighi., M. H., Bahroudi, A. and Fathian, A. (2022). Transient aseismicslip and cRustal Shortening Following 2017 Iran-Iraq (Sarpol-e Zahab) Mw 7.3 Earthquake Inferred from 3 years of InSAR Observations, *EGU General Assembly 2022*, Vienna, Austria, 2022.
5. ***Guo, Z.***, Wen, Y.; Xu, C. and Xu, G. Modeling of Coseismic and Early Postseismic Deformation Associated with the 2018 Mw 7.9 Kodiak, Alaska Earthquake from Static and High-rate GPS Observations (in Chinese), *3rd Congress of China Geodesy and Geophysics*, China, 2018
6. ***Guo, Z.***, Wen, Y.; Xu, G.; Wang S.; and Xu, G.; Wang, X.; Liu, Y.; Xu, C. Slip Distribution of the 2018 Mw 6.6 Hokkaido Eastern Iburi, Japan, Earthquake from InSAR and GPS data (in Chinese), *6th Annual Meeting of Chinese Geoscience Union (CGU)*, China, 2019

Scholarship and Awards

Scholarship:

- CSC (China Scholarship Council) Scholarship, China — *2020 - 2024*
- National Scholarship (20,000 RMB), Wuhan University, China — *Oct. 2019*
- Academic Scholarship (First Class), School of Geodesy and Geomatics, Wuhan University — *Oct. 2019*
- Academic Scholarship, School of Geodesy and Geomatics, Wuhan University — *Sep. 2018*
- Academic Scholarship, School of Geodesy and Geomatics, Wuhan University — *Sep. 2017*
- Jianyuan Scholarship, Shandong University of Science and Technology — *Dec. 2014*

- School-Level Scholarship, Shandong University of Science and Technology *2012 - 2016*

Awards:

- Outstanding Student Paper Award, 6th Annual Meeting of Chinese Geoscience Union, (CGU) *Dec. 2019*
- Excellent Graduate Student, Wuhan University *Nov. 2019*
- Lequn Academic Star, School of Geodesy and Geomatics, Wuhan University *Oct. 2019*
- Silver medalist for Surveying and Mapping Skills Contest of Shandong *Oct. 2014*
- Bronze medalist for Surveying and Mapping Skills Contest of Shandong University of Science and Technology *May. 2014*