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EDUCATION

- 2007 - 2010 Ph.D. (Summa cum laude), Potsdam University, Potsdam, Germany. Title of the thesis: Crustal deformation source monitoring using advanced InSAR time series and time-dependent inverse modeling.
- 2001 - 2003 M.S. Geodesy, Tehran University, Tehran, Iran. Title of thesis: Wavelet inversion of ground-based gravity data for hydrocarbon exploration.
- 1998 - 2001 B.A. Surveying engineering, Amir-Kabir University of Technology, Tehran, Iran

PROFESSIONAL EXPERIENCE

- 6/2019- Associate professor, Arizona State University, Tempe, USA
- 1/2013 – 6/2019 Assistant professor, Arizona State University, Tempe, USA
- 3/2011 - 12/2012 Postdoctoral Scholar, Univ. of California, Berkeley, USA
- 6/2010 - 3/2011 Postdoctoral Scholar, German Research Centre for Geosciences (GFZ), Potsdam, Germany
- 9/2007 - 6/2010 Geophysicist/geodesist, German Research Centre for Geosciences (GFZ), Potsdam, Germany
- 1/2005 – 8/2007 Geophysicist/geodesist, International Institute of Earthquake Engineering and seismology, (IIEES), Tehran, Iran
- 3/2003 – 12/2004 Geodesist, National Cartographic Centre (NCC), Tehran, Iran

HONORS AND AWARDS

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|-------------|---|
| 2011 | Awarded for top young scientist, German Research Centre for Geosciences (GFZ), Potsdam, Germany |
| 2010 | Awarded PhD (Summa cum laude), University of Potsdam |
| 2007 - 2010 | Geotechnologien fellowship, Germany |
| 2004 | Awarded for top master thesis at Tehran University |
| 2004 | First ranked student in M.S., Tehran University, Tehran, Iran |
| 1999 - 2001 | First ranked student in B.A., Amir-Kabir University of Technology, Tehran, Iran |
| 1994 - 1998 | First ranked student in high school |

TEACHING ACTIVITIES

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|----------------|---|
| 2013 - present | Professor and lecturer, Arizona State University |
| 2008 - 2009 | Teaching assistant, Potsdam University, Germany |
| 2004 - 2005 | Lecturer, school of surveying engineering, Hamedan, Iran |
| 2004 - 2006 | Lecturer, Amir-Kabir University of Technology, Tehran, Iran |

COURSES TAUGHT

- Introduction to Statistics (1 semester, upper graduate level, total of ~15 students)
- Radar Remote Sensing of Earth and Planetary Surfaces (1 semester, upper graduate level, total of ~15 students)
- Crustal Deformation (3 semester, upper graduate level, total of ~45 students)
- Introduction to Physical Geology (6 semester, total of ~1200 students)
- Hydrogeodesy (1 semester, upper graduate level, total of ~8 students)

ORGANIZATIONAL INVOLVEMENT AND SERVICES

- 2018 - Tectonic Geodesy Planning Committee, Southern California Earthquake Center
- 2018 - 2021 NASA Sea Level change team member
- 2017 NASA MEaSURES program review panelist
- 2018 NASA Early Career program review panelist
- 2016 - 2018 ASU leadership academy team member
- Following a completion at ASU level, the team is elected to proceed and received resources to develop Earth observation program in ASU.
- 2015 - 2018 School of Earth and Space Exploration Graduate Committee
- 2017 - 2018 ASU Future H2O initiative
- 2013 - present PhD technical review and qualification exam committee member (students: Barrett Salisbury, Kristina Davis, Alexandra Horne, Brett Carr, Nathan Williams, Megan Miller, Guang Zhai, Mostafa Khoshmanesh, Zac Yung-Chun Liu, Nari Miller, Hanah Kerner, Grace Carlson)
- 2013 - present PhD defense committee member (students: *David Haddad, Luis Méndez-Barroso, Brett Carr, Barrett Salisbury, Megan Miller, Guang Zhai, Mostafa Khoshmanesh*)
- present Serving as referee for several ISI journals such as GRL, JGR, EPSL, RS, G3, GJI, SGG, JVGR, GRSL, P&AG, Geology, JS, Tectonics, Science, Nature...
- 2012 - 2016 American Geophysical Union session organizer, chairman and judge
- 2010 - 2011 European Geoscience Union special session chairman
- present Member of American Geophysical Union, Seismological Society of America, Geological Society of America...

GRADUATE AND HONOR STUDENTS, MAIN ADVISER

Current

Student	Duration	Project
Grace Carlson (recipient of SESE graduate fellowship)	2017 - 2022	Remote sensing and modeling of total water storage variations in California (PhD)
Sonam Sherpa	2018 - 2023	Probabilistic modeling of flood hazard Around the United States (PhD)
Emma Blackwell	2018 - 2023	Understanding and Predicting Coastal Sea Level Variability Around the United States (PhD)

Graduated

Student	Date	Project
Megan Miller (recipient of NASA graduate fellowship and NSF fellowship)	April 2018	Remote sensing and modeling of stressed aquifers and the associated hazards (PhD) Now: researcher at JPL
Guang Zhai	July 2018	Mechanical Modeling of Natural and Anthropogenic Fluid-Rock Interactions: Volcano Deformation and Induced Seismicity (PhD) Now: Postdoc at ASU and UC Berkeley
Mostafa Khoshmanesh (recipient of NASA graduate fellowship)	October 2018	Mechanism of slow slip events on San Andreas fault: constraints from geodesy and seismology (PhD) Now: Postdoc at ASU

Past

Student	Duration	Project
Zac Yung-Chun Liu (MS)	2015 - 2016	Constraining the Evolution of Martian Atmosphere through Analysis of the Impact Ejecta
Alex Sedlak (Honor thesis)	2013 - 2014	Application of InSAR to Injection-Induced Deformation and Seismicity

GRADUATE AND HONOR STUDENTS, SECOND ADVISER

Past

Student	Duration	Project
Alexandra Horne (2 nd adviser)	2015 - 2016	Quantifying the Hydrologic Effects of the 2010-2011 Canterbury Earthquakes
Nari Miller (2 nd adviser)	2016 - 2017	Aquifer connectivity in Dixie Valley, Nevada and across the Basin and Range
John Christoph	2017 - 2018	Concept study of a synthetic aperture radar instrument for a future mission to Io

POSTDOC

Researcher	Appointment Duration
Dr. Sui Tung	2019 - 2020
Dr. Mostafa Khoshmanesh	2018 – 2019
Dr. Guang Zhai (adjunct with UC Berkeley)	2018 – 2020
Dr. Chandra Ojha	2016 – 2019
Dr. Jennifer Weston	2014 - 2016

INVITED TALKS AND LECTURES

2019	Georgia Institute of Technology, Atlanta, GA
2018	Recent Advances in Machine Learning and Computational Methods for Geoscience, Minnesota
2018	Geological Remote Sensing Group, Boulder, Colorado
2018	UNAVCO Science Workshop, Broomfield, Colorado
2017	ASU Water Summit, keynote speaker and panelist
2017	Earthscope Hydrogeodesy Workshop, San Diego, California
2016	Carnegie institute of Science
2016	Colorado School of Mines
2016	Geological Society of America, Colorado
2016	Southern California Earthquake Center Community Geodetic Model workshop
2015	Jet Propulsion Laboratory
2015	American Geophysical Union Fall meeting, San Francisco

- 2015 University of Arizona
- 2014 NASA workshop, Reston, Virginia
- 2014 University of Arizona
- 2014 Massachusetts Institute of Technology
- 2013 University of Arizona
- 2013 Workshop on observations of sea-level rise and storminess in California, Riverside
- 2013 Southern California Earthquake Center annual meeting, Palm Spring, California
- 2013 Southern California Earthquake Center community fault model, California
- 2013 Northern California Earthquake Hazards, US Geological Survey, California
- 2012 Arizona State University
- 2012 Northern California Earthquake Hazards, US Geological Survey, California
- 2012 Institut de Physique du Globe, France
- 2011 US Geological Survey, California
- 2010 Geological Survey of Iran, Iran
- 2010 CNRS, Laboratoire Magmas et Volcans, France
- 2010 American Geophysical Union, Fall meeting, San Francisco
- 2010 German Center For and Space Science, Germany
- 2009 European Geoscience Union, Austria

PUBLICATIONS (STUDENTS ARE HIGHLIGHTED)

51- Khoshmanesh, M. and Shirzaei, M. (2019), Deep slow-slip events promote seismicity in northeastern Japan megathrust, *Earth and Planetary Science Letters*, submitted.

50- Ojha, C., S. Werth, and Shirzaei, M. (2019) An Inventory of Present Day Land Subsidence in Southwest US from Sentinel-1 SAR Interferometry, *Remote Sensing of Environment*, submitted.

49- Carlson, G., Shirzaei, M., Ojha, C., and Werth, S. (2019), Seasonal and Long-term Groundwater Unloading Modifies Crustal Stress in California, *Journal of Geophysical Research: Solid Earth*, submitted.

48- Zhai G., M. Shirzaei, M. Manga, and X. Chen (2019) Pore pressure diffusion, enhanced by poroelastic stresses, controls induced seismicity in Oklahoma, *Proceeding of National Academy of Science*. In press.

47- Shirzaei, M., C. Ojha, S. Werth, G. Carlson, and E. R. Vivoni (2019), Comment on "Short-lived pause in Central California subsidence after heavy winter precipitation of 2017" by K. D. Murray and R. B. Lohman, *Science Advances*, 5(eaav8038).

46- Shirzaei, M., M. Manga, and G. Zhai (2019), Hydraulic properties of injection formations constrained by surface deformation, *Earth and Planetary Science Letters*, 515, 125-134, doi:<https://doi.org/10.1016/j.epsl.2019.03.025>.

- 45- Miller, M. M., and M. Shirzaei (2019), Land subsidence in Houston correlated with flooding from Hurricane Harvey, *Remote Sensing of Environment*, 225, 368-378, doi:<https://doi.org/10.1016/j.rse.2019.03.022>.
- 44- Ojha, C., S. Werth, and M. Shirzaei (2019), Groundwater Loss and Aquifer System Compaction in San Joaquin Valley During 2012–2015 Drought, *Journal of Geophysical Research: Solid Earth*, 124(3), 3127-3143.
- 43- Khoshmanesh, M., and M. Shirzaei (2018), Episodic creep events on the San Andreas Fault caused by pore pressure variations, *Nature Geoscience*, doi:10.1038/s41561-018-0160-2.
- 42- Ojha, C., M. Shirzaei, S. Werth, D. F. Argus, and T. G. Farr (2018), Sustained Groundwater Loss in California's Central Valley Exacerbated by Intense Drought Periods, *Water Resources Research*, 54, doi:doi:10.1029/2017WR022250.
- 41- Guang, Z., and M. Manoochehr (2018), Fluid Injection and Time-Dependent Seismic Hazard in the Barnett Shale, Texas, *Geophysical Research Letters*, 45, doi:doi:10.1029/2018GL077696.
- 40- Khoshmanesh, M., & Shirzaei, M. (2018), Multiscale dynamics of aseismic slip on Central San Andreas Fault. *Geophysical Research Letters*, 45. <https://doi.org/10.1002/2018GL077017>.
- 39- M. Shirzaei, R. Bürgmann (2018), Global climate change and local land subsidence exacerbate inundation risk to the San Francisco Bay Area. *Science Advances*, 4, eaap9234.
Highlighted by: [New York Times](#), [Wired](#), [ScienceDaily](#), and more than 20 other media outlets.
- 38- Zhai, G., & Shirzaei, M. (2017). 3-D modeling of irregular volcanic sources using sparsity-promoting inversions of geodetic data and boundary element method. *Journal of Geophysical Research: Solid Earth*, 122. <https://doi.org/10.1002/2017JB014991>.
- 37- Miller, M. M., Shirzaei, M., & Argus, D. (2017). Aquifer mechanical properties and decelerated compaction in Tucson, Arizona. *Journal of Geophysical Research: Solid Earth*, 122. <https://doi.org/10.1002/2017JB014531>.
- 36- Shirzaei, M., R. Bürgmann, and E. J. Fielding (2017), Applicability of Sentinel-1 Terrain Observation by Progressive Scans multitemporal interferometry for monitoring slow ground motions in the San Francisco Bay Area, *Geophysical Research Letters*, 44, doi:10.1002/2017GL072663.
- 35- Wang C.-Y., M. Manga, M. Shirzaei, M. Weingarten, and L.-P. Wang (2017), Induced Seismicity in Oklahoma Affects Shallow Groundwater, *Seismol. Res. Lett.*, doi:10.1785/0220170017.

34- Manga, M., C. Y. Wang, and M. Shirzaei (2016), Increased stream discharge after the 3 September 2016 M-w 5.8 Pawnee, Oklahoma earthquake, *Geophysical Research Letters*, 43(22), 11588-11594, doi:10.1002/2016gl071419.

33-Shirzaei, M., W. L. Ellsworth, K. F. Tiampo, P. J. González, and M. Manga (2016), Surface uplift and time-dependent seismic hazard due to fluid injection in eastern Texas, *Science*, 353(6306), 1416-1419, doi:10.1126/science.aag0262.

- *Highlighted by:* [Scientific American](#), [NewScientist](#), [TexsasMonthly](#), [CIRES](#), [ScienceDaily](#), [TheChemicalEngineer](#), [Futurism](#), [KERA](#), [COMET](#), [ScienceNews](#), [CanadianUnderWriter](#)

32-Zhai, G., and M. Shirzaei (2016), Spatiotemporal model of Kīlauea's summit magmatic system inferred from InSAR time series and geometry-free time-dependent source inversion, *Journal of Geophysical Research: Solid Earth*, doi:10.1002/2016JB012953.

31- Whipple K.X., M. Shirzaei, K. Hodges and J.R. Arrowsmith (2016) 2015 Gorkha Earthquake Provokes Reassessment of Mountain Building Processes in the Himalaya, *Nature Geoscience*, DOI: 10.1038/NGEO2797.

30-Weston, J., and M. Shirzaei (2016), Combining GPS and repeating earthquakes for a high resolution analysis of subduction zone coupling, *Tectonophysics*, S0040-1951(15)00636-8, doi:10.1016/j.tecto.2015.11.009.

29-Khoshmanesh, M., M. Shirzaei, and R. M. Nadeau (2015), Time-dependent model of aseismic slip on the central San Andreas Fault from InSAR time series and repeating earthquakes, *Journal of Geophysical Research Solid Earth*, 120, doi:10.1002/2015JB012039.

28-Miller, M. M., and M. Shirzaei (2015), Spatiotemporal characterization of land subsidence and uplift in Phoenix using InSAR time series and wavelet transforms, *Journal of Geophysical Research Solid Earth*, 120, doi:10.1002/2015JB012017.

- *Highlighted by:* [European Space Agency](#), [KJZZ](#), [AZ central](#), [SESE news](#), [12 NEWS](#).

27-Turner, R. C., M. Shirzaei, R. M. Nadeau, and R. Bürgmann (2015), Slow and Go: Pulsing Slip Rates on the Creeping Section of the San Andreas Fault, *Journal of Geophysical Research Solid Earth*, 120, doi:10.1002/2015JB011998.

26-Shirzaei, M., M. L. Rudolph, and M. Manga (2015), Deep and shallow sources for the Lusi mud eruption revealed by surface deformation, *Geophysical Research Letters*, 42, doi:10.1002/2015GL064576.

25-Shirzaei, M. (2015), A seamless multitrack multitemporal InSAR algorithm, *Geochem. Geophys. Geosyst.*, 16, doi:10.1002/2015GC005759.

24-Zakšek, K., L. Pick, M. Shirzaei, and M. Hort (2015), Thermal monitoring of volcanic effusive activity: the uncertainties and outlier detection, Geological Society, London, Special Publications, 426, doi:10.1144/SP426.2.

23-Shirzaei, M., Bürgmann, R., Uchida, N., Hu, Y., Pollitz, F., Matsuzawa, T. (2014) Seismic versus aseismic slip: Probing mechanical properties of the northeast Japan subduction zone. Earth and Planetary Science Letters, doi: 10.1016/j.epsl.2014.08.035.

22-Walter, T. R., M. Shirzaei, A. Manconi, G. Solaro, A. Pepe, M. Manzo, and E. Sansosti (2014), Possible coupling of Campi Flegrei and Vesuvius as revealed by InSAR time series, correlation analysis and time dependent modeling, Journal of Volcanology and Geothermal Research, 280, 104-110, doi:10.1016/j.jvolgeores.2014.05.006.

21-Chaussard, E., R. Bürgmann, M. Shirzaei, E. J. Fielding, and B. Baker (2014), Predictability of hydraulic head changes and characterization of aquifer-system and fault properties from InSAR-derived ground deformation, Journal of Geophysical Research Solid Earth, 119, doi:10.1002/2014JB011266.

20-Nikolaeva, E., T.R. Walter, M. Shirzaei and J. Zschau (2014) Landslide observation and volume estimation in central Georgia based on L-band InSAR, Nat. Hazards Earth Syst. Sci., 14, 675-688, doi:10.5194/nhess-14-675-2014.

19-Shirzaei, M., Bürgmann, R. and Taka' aki, T. (2013), Implications of recent asperity failures and aseismic creep for time-dependent earthquake hazard on the Hayward fault, Earth and Planetary Science Letters, doi:10.1016/j.epsl.2013.04.024.

18-Shirzaei, M. Walter, T. R., and Bürgmann, R. (2013), Coupling of Hawaiian volcanoes during mantle-driven surge, Geophysical Research Letters, doi: 10.1002/grl.50470.

- *Highlighted by: [Science](#), Wigginton, N. S. (2013), Hawaii's Deep Plumbing System, Science, 340(6134), 788, doi:10.1126/science.340.6134.788-a*

17-Rudolph, M. L., Shirzaei, M., and Manga, M. (2013), Source evolution of the Lusi mud eruption from surface deformation, Geophysical Research Letters, DOI: 10.1002/grl.50189.

- *Highlighted by: [ScienceNEWS](#), and [BBC](#)*

16-Shirzaei, M., and R. Bürgmann (2013), Time-dependent model of creep on the Hayward fault from joint inversion of 18 years of InSAR and surface creep data, Journal of Geophysical Research, doi: 10.1002/jgrb.50149.

15-Shirzaei, M., R. Bürgmann, J. Foster, T. R. Walter, and B. A. Brooks (2013), Aseismic deformation across the Hilina fault system, Hawaii, revealed by wavelet analysis of InSAR and GPS time series, Earth and Planetary Science Letters, 376, 12-19, doi:10.1016/j.epsl.2013.06.011.

14-Bathke, H., H. Sudhaus, E. P. Holohan, T. R. Walter, and M. Shirzaei (2013), An active ring fault detected at Tendürek volcano by using InSAR, *Journal of Geophysical Research Solid Earth*, 118, 4488–4502, doi:10.1002/jgrb.50305.

13-Zakšek, K M. Shirzaei, and Hort, M. (2013), Constraining the uncertainties of volcano thermal anomaly monitoring using a Kalman Filter technique. *Geological Society of London*. 380, doi: 10.1144/SP380.5.

12-Shirzaei, M. (2013), A wavelet based multitemporal DInSAR algorithm for monitoring ground surface motion, *Geoscience and Remote Sensing Letters*, doi: 10.1109/LGRS.2012.2208935.

11-Shirzaei, M., and R. Bürgmann (2012), Topography correlated atmospheric delay correction in radar interferometry using wavelet transforms, *Geophysical Research Letters*, 39, L01305, doi:10.1029/2011GL049971.

10-Shirzaei, M, R. Bürgmann, O. Oncken, T. R. Walter, P. Victor, and O. Ewiak (2012), Response of crustal faults to megathrust earthquakes cycle: InSAR evidence from Mejillones Peninsula, northern Chile, *Earth and Planetary Science Letters*, 333–334 (2012) 157– 164. doi.org/10.1016/j.epsl.2012.04.001

9-Shirzaei, M., T. R. Walter, H. R. Nankali, and E. Holohan (2011), Gravity-driven deformation of Damavand volcano detected through InSAR time series, *Geology*, 39, 3, 251–254; doi: 10.1130/G31779.1.

- *Highlighted by:* [GSA press](#)

8-Shirzaei, M., and T. R. Walter (2011), Satellite orbital error reduction using wavelet based robust regression applied to InSAR deformation data, *IEEE Transactions on Geoscience and Remote Sensing*, 49(11), doi: 10.1109/TGRS.2011.2143419.

7-Bathke, H., Shirzaei, M., and T. R. Walter (2011), Inflation and deflation at the steep-sided Llaima stratovolcano (Chile) detected by using InSAR, *Geophysical Research Letters*, VOL. 38, L10304, doi:10.1029/2011GL047168.

6-Shirzaei, M., and T. R. Walter (2010), Time-dependent volcano source monitoring using InSAR time series: A combined Genetic Algorithm and Kalman Filter approach, *Journal of Geophysical Research*, 115, B1042, doi:10.1029/2010JB007476.

5-Walter, T. R.; Manzo, M.; Manconi, A.; Solaro, G.; Lanari, R.; Motagh, M.; Woith, H.; Parolai, S.; Shirzaei, M.; Zschau, J.; Baris, S.; Ansal, A. (2010), Satellite Monitoring of Hazards: A focus on Istanbul, Turkey. *Eos, Transactions, American Geophysical Union*, 91, 36, 313-314, doi: 10.1029/2010EO360001.

4-Wauthier C., A. Oyen, P. Marinkovic, V. Cayol, J. Fernández, P. Gonzalez, R. F. Hanssen, F. Kervyn, N.d'Oreye, M. Shirzaei, T. R. Walter (2009), L-band and C-band InSAR Studies of African Volcanic Areas. *IGARSS (2) 2009*: 210-213, doi: 10.1109/IGARSS.2009.5418043.

3-Shirzaei, M., and T. R. Walter (2009), Randomly Iterated Search and Statistical Competency (RISC) as powerful inversion tools for deformation source modeling: application to volcano InSAR data, *Journal of Geophysical Research*, 114, B10401, doi:10.1029/2008JB006071.

2-Ruch, J., A. Manconi, G. Zeni, G. Solaro, A. Pepe, M. Shirzaei, T. R. Walter, and R. Lanari (2009), Stress transfer in the Lazufre volcanic area, Central Andes, *Geophysical Research Letters*, 36, L22303, doi:22310.21029/22009GL041276.

1-Exupéry Team (2008), Managing volcanic unrest: The mobile volcano fast response system, paper presented at Use of Remote Sensing Techniques for Monitoring Volcanoes and Seismogenic Areas, Napoli, Italy, doi: 10.1109/USEREST.2008.4740358.

Conference papers

Shirzaei, M., Manga, M., Zhai, G. (2019) Hydraulic Properties of Injection Formations in Eastern Texas Constrained by Surface Deformation. *Seismological Society of America*, Seattle, WA.

Sherpa, S. F., Shirzaei, M., and Werth, S. (2018) Probabilistic Mapping of Water Bodies Using Space-borne Synthetic Aperture Radar, *American Geophysical Union*.

Carlson, G., Shirzaei, M., Ojha, C., and Werth, S. (2018) The Effect of Aquifer Compaction and Groundwater Unloading on Crustal Stress Change in California During the 2007-2010 Drought, *American Geophysical Union*.

Argus, D., Shirzaei, M., and Peltier, W. R. (2018) Subsidence along the Gulf and Atlantic coast of the United States exacerbates ocean inundation of the land produced by sea level rise, *American Geophysical Union*.

Shirzaei M., Khoshmanesh, M., M., Weston, (2018) Periodic Slow Slip Events and Their Interactions with Megathrust Earthquakes on Northeast Japan Subduction Zone, *American Geophysical Union*.

Zhai, G. and Shirzaei M. (2018) Physics-Based Forecasting of Time, Magnitude, and Probability of Induced Earthquakes in Oklahoma, *American Geophysical Union*.

Lee, J., Liu, Z. Y., and Shirzaei, M. (2018) Depth variations of fault friction parameter derived from dynamic modeling of GPS afterslip associated with the 2003 Mw 6.5 Chengkung earthquake in eastern Taiwan, *American Geophysical Union*.

Khoshmanesh, M. and Shirzaei, M. (2018) Slow Slip Events on the San Andreas Fault Caused by Episodic Pore Pressure Elevation, *American Geophysical Union*.

Ojha, C., Shirzaei, M., and Werth, S. (2018) Land Subsidence, Groundwater Loss and Aquifer Storage Reduction in California's Central Valley During 2007-2010 and 2012-2016 Droughts, American Geophysical Union.

Shirzaei, M., R. Bürgmann, and E. J. Fielding (2017), Sentinel-1 TOPS Multitemporal Interferometry for Monitoring Slow Ground Motions Associated with Tectonic and Hydrological Processes, American Geophysical Union.

Miller, M.M. and Shirzaei, M. (2017), Halting Land Subsidence in Tucson, Arizona: Examining the Poroelastic Response to Artificial Recharge (Invited), American Geophysical Union.

Miller, M.M. and Shirzaei, M. (2017), The impact of local land subsidence and global sea level rise on flood severity in Houston-Galveston caused by Hurricane Harvey, American Geophysical Union.

Ojha, C., Shirzaei, M. Werth, S. and Argus, D. (2017), Investigating Groundwater Depletion and Aquifer Degradation in Central Valley California from Space, American Geophysical Union.

Zhai, G. and Shirzaei M. (2017), Investigating the relationship between seismicity and fluid injection in the Barnett Shale, Texas using coupled poroelastic model and surface deformation data, American Geophysical Union.

Khoshmanesh, M. and Shirzaei M. (2017), Creep avalanches on San Andreas Fault and their underlying mechanism from 19 years of InSAR and seismicity, American Geophysical Union.

Lee, J., Mu, C., Huang, W., Liu, Z., and Shirzaei, M. (2017) Geological and mechanical properties on the 3-D fault patch of the rapid creeping Chihshang Fault: a plate suture between Luzon arc and Eurasia in eastern Taiwan (Invited) , American Geophysical Union.

Ojha, C., Shirzaei, M. et al. (2016), Quantifying large scale deformation and aquifer properties over Central Valley, California using a combination of InSAR, GPS and hydraulic head level data, American Geophysical Union.

Khoshmanesh, M. and Shirzaei M. (2016), Compaction-induced elevated pore pressure and creep pulsing in California faults, American Geophysical Union.

Miller, M.M. and Shirzaei, M. (2016), Stress dependence of hydraulic properties: case studies from US and New Zealand, American Geophysical Union.

Zhai, G. and Shirzaei M. (2015), Sparsity-promoting inversion for modeling of irregular volcanic deformation source, American Geophysical Union.

Wang, C. Y. et al. (2016), Induced Seismicity in Oklahoma Affects Shallow Groundwater, American Geophysical Union.

Lee, J. C. et al. (2016) Depth variations of friction rate parameter derived from dynamic modeling of GPS afterslip associated with the 2003 Mw 6.5 Chengkung earthquake in eastern Taiwan, American Geophysical Union.

Argus, D. F. et al (2016), Sustained Changes in Water Storage in the Western U.S: Toward a Determination Integrating GPS, GRACE, (and InSAR), American Geophysical Union.

Shirzaei, M., (2016), Surface uplift and time-dependent seismic hazard due to fluid-injection: Case studies from Texas and Kansas, Geological Society of America.

Shirzaei, M., Ellsworth, W., Tiampo, K. and Gonzalez, P. (2015), Surface uplift and time-dependent seismic hazard due to fluid-injection in eastern Texas, American Geophysical Union.

Weston, J. and Shirzaei M. (2015), Updated Long Term Fault Slip Rates and Seismic Hazard in the Central Alborz, Iran: New Constraints From InSAR and GPS, American Geophysical Union.

Williams, N., Shirzaei, M. et al. (2015), Inverse Modeling of Wrinkle Ridge Structures on the Moon and Mars, American Geophysical Union.

Shirzaei et al. (2015), Deep and shallow sources for the Lusi mud eruption revealed by surface deformation, American Geophysical Union.

Miller, M.M. and Shirzaei, M. (2015), Spatiotemporal distribution of strain field and hydraulic conductivity at the Phoenix valley basins, constrained using InSAR time series and time-dependent models, American Geophysical Union.

Khoshmanesh, M. and Shirzaei M. (2015), Creep avalanches on the Central San Andreas Fault: Clues and Causes, American Geophysical Union.

Liu, Z.Y. and M. Shirzaei (2015), Constraining planetary atmospheric density: application of heuristic search algorithms to aerodynamic modeling of impact ejecta trajectories, American Geophysical Union.

Zhai, G. and Shirzaei M. (2015), 4D map of the Kilauea summit shallow magmatic system constrained by InSAR time series and geometry-free inversions, American Geophysical Union.

Miller, M.M. and Shirzaei, M. (2014), Spatiotemporal Characterization of Aquifers Using InSAR Time Series and Time-dependent Poroelastic Modeling in Phoenix, Arizona, American Geophysical Union.

Horne, A. and Shirzaei, M. (2014), Quantifying the Hydrologic Effects of the 2010-2011 Canterbury Earthquakes, American Geophysical Union.

Weston, J. and Shirzaei M. (2014), Mechanisms Behind Aseismic Slip Pulsing on the Northeast Japan Subduction Zone: Insights from Time-Dependent Modelling of GPS and Repeating Earthquakes, American Geophysical Union.

Zhai, G. and Shirzaei M. (2014), Time-dependent deformation source model of Kilauea volcano obtained via InSAR time series and inversion modeling, American Geophysical Union.

Khoshmanesh, M. and Shirzaei M. (2014), Time-dependent Model of Aseismic slip on the Central San Andreas Fault from InSAR Time Series and Repeating Earthquakes, American Geophysical Union.

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DEVELOPED SOFTWARE

	Description
WabInSAR	Wavelet based InSAR time series toolbox for multi-temporal analysis of radar data
MT-WabInSAR	Wavelet based InSAR time series toolbox for multi-track multi-temporal analysis of radar data
MST-WabInSAR	Wavelet based InSAR time series toolbox for multi-sensor, multi-track multi-temporal analysis of radar data
WabOrbC	Wavelet based robust regression tool for correcting the effect of orbital error in repeat pass interferometry
WabTCADC	Wavelet based method for topography correlated atmospheric delay correction in repeat pass interferometry
RISC-GA-KF	Heuristic tool for optimizing variety of dynamic geophysical problems
RISC-SA/GA	Heuristic confident tool for optimizing variety of static geophysical problems

GRANTS

#	Title	Agency	Duration	Fund	Shirzaei %	Role
1	Application of InSAR and modeling to investigate time-dependent seismic hazard associated with waste water injection	USGS	5/1/15-4/30/17	\$46,608	100%	PI
2	Origin of hydrologic responses to earthquakes: constraints from New Zealand, Taiwan, Chile, and the USA	NSF	4/15/14-4/31/18	\$101,852	100%	PI
3	Time-dependent creep model of the central creeping section of the San Andreas Fault from 21 years of InSAR, GPS and repeating earthquakes	NSF	5/1/14-4/30/18	\$262,322	100%	PI
4	Remote sensing of land subsidence and hydrological properties across Arizona	NASA	7/1/16-8/31/18	\$100,000	100%	PI
5	Mechanism of slow slip events on San Andreas fault: constraints from geodesy and seismology	NASA	7/15/17-8/31/18	\$100,000	100%	PI
6	Time-dependent model and underlying mechanism of creep rate variations on the Hayward Fault	USGS	1/1/18-12/31/18	\$70,591	100%	PI
7	Remote sensing of water mas budget variations in California	NASA	1/1/17-1/1/20	\$550,000	50%	Co-I
8	Observations, Models and Mechanism of Spatiotemporal Interseismic Fault Creep in California.	NSF	8/1/17-7/31/20	\$335,189	100%	PI
9	Understanding and Predicting Coastal Sea Level Variability Around the United States	NASA	8/22/17-8/21/20	\$961,457	80%	PI
10	Physics-based Operational Induced Earthquake Forecasting: Process Understanding and Hazards Mitigation	DOE	9/1/2018-9/1/2021	\$997,107	100%	PI
11	Time-series analysis of fault creep rates within the Salton Trough of the Southern San Andreas Fault constrained from a decade of repeat-pass NASA UAVSAR radar imagery	SCEC	03/15/19-03/15/20	\$27,795	-	Co-I