YUJIE ZHENG

Curriculum Vitae

Division of Geological and Planetary Sciences
Seismological Laboratory
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RESEARCH INTERESTS

My research focuses on developing and applying new techniques to analyze a combination of geodetic observations – primarily Interferometric Synthetic Aperture Radar (InSAR), to better understanding changes of the Earth's surface related to natural (e.g., active tectonics and volcanic processes, permafrost thawing/freezing) and anthropogenic processes (e.g., withdrawal of groundwater from aquifers).

EDUCATION

Stanford University, Stanford, CA

Ph.D., Geophysics, January 2020

- Thesis title: Imaging Cascadia slow slip events with modern interferometric synthetic aperture radar datasets
- Committee: Howard Zebker (principal advisor), Paul Segall, Eric Dunham, Dustin Schroeder

Peking University, Beijing, China

Bachelor of Science in Geophysics, July 2014
Bachelor of Economics, July 2014

EMPLOYMENT AND RESEARCH EXPERIENCE

Postdoctoral Scholar, California Institute of Technology	2019 – present
Research Assistant, Stanford University	2014 – 2019
Undergraduate Research Assistant, Peking University	2012 – 2014

PUBLICATIONS

In preparation:

- **Zheng, Y.**, Fattahi, H., Agram, P., and Simons, M., Assessing closure phase statistics and its implications on InSAR time-series practices.
- **Zheng, Y.** and Zebker, H.A., Investigating Cascadia slow slip and inter-seismic deformation with Interferometric Synthetic Aperture radar
- **Zheng, Y.** and Segall, P., Constraints on absolute magma chamber volume from geodetic measurements: Trapdoor faulting in the Galapagos

Submitted:

- Wang, T., **Zheng, Y.**, Pulvirenti, F., Segall, P., Post-2018 caldera collapse re-inflation uniquely constrain Kilauea's magmatic system, *Journal of Geophysical Research: Solid Earth*

Published:

- **Zheng, Y.**, Zebker, H.A., and Michaeledes, R.J., A New Decorrelation Phase Covariance Model for Noise Reduction in Unwrapped Interferometric Phase Stacks, *IEEE Transactions on Geoscience and Remote Sensing, doi: 10.1109/TGRS.2021.3050087*
- **Zheng, Y.**, Zebker, H.A., and Michaeledes, R.J., "A Physics-Based Decorrelation Phase Covariance Model for Effective Decorrelation Noise Reduction in Interferogram Stacks," *In Geoscience and Remote Sensing Symposium, 2020 IEEE International (pp. 16-19). IEEE.*
- **Zheng,Y.,** 2019, Imaging Cascadia Slow Slip Events with Modern Interferometric Synthetic Aperture Radar Datasets, Ph.D. Thesis, Stanford University
- Michaelides, R.J., Zebker, H.A., **Zheng, Y.,** 2019. An Algorithm for Estimating and Correcting Decorrelation Phase from InSAR Data Using Closure Phase Triplets. *IEEE Transactions on Geoscience and Remote Sensing*, vol. 57, no. 12, pp. 10390-10397
- **Zheng, Y.** and Zebker, H.A., 2017. Phase Correction of Single-Look Complex Radar Images for User-Friendly Efficient Interferogram Formation. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 10(6), pp. 2694-2701
- Zebker, H.A. and **Zheng, Y.**, 2016, July. Robust and efficient InSAR deformation time series processing. *In Geoscience and Remote Sensing Symposium, 2016 IEEE International (pp. 3198-3200). IEEE.*
- **Zheng, Y.** and Zhou, S., 2014. The spatiotemporal variation of the b-value

and its tectonic implications in North China. Earthquake Science, 27(3), pp.301-310.

Invited Talks

- Caltech Institute of Technology, Seismological Laboratory, Nov 2020
- University of California, Berkeley, Active Tectonic Group Seminar, Oct 2018
- Google, Google Android Location Team, June 2018

Conference Presentations

- **Zheng, Y.**, Fattahi, H., Agram, P., Simons, M., 2020, December. Assessing closure phase and its impact on InSAR time-series. 2020 American Geophysics Union Fall Meeting, Abstract G004-0029
- Wang, T., Segall, P**., Zheng, Y.**, 2020, December. Illuminating Kilauea's magmatic plumbing system: physics-based modeling of post 2018 simultaneous inflation and deflation. 2020 American Geophysics Union Fall Meeting, Abstract V002-0005
- **Zheng, Y.**, Zebker, H.A. and Michaelides, RJ., 2020, September. A Physics-Based Decorrelation Phase Covariance Model for Effective Decorrelation Noise Reduction in Interferogram Stacks. 2020 IEEE International Geoscience and Remote Sensing Symposium.
- Segall. P., Wong, YQ, Heimisson, ER, **Zheng, Y** and Anderson KR, 2019, December, Physics-based Models Expand Insights Gained from Volcano Geodesy. 2019 American Geophysics Union Fall Metting, Abstract G31A-01
- **Zheng, Y**. and Zebker, H.A., 2019, December. Are redundant interferograms really redundant? On the use of redundant interferograms to reduce noise. 2019 American Geophysics Union Fall Meeting, Abstract G21-04
- **Zheng, Y.** and Zebker, H.A., 2018, December. Slow Slip Events in Cascadia: Observation from Sentinel-1. 2018 American Geophysics Union Fall Meeting, Abstract U11B-02
- **Zheng, Y.** and Zebker, H.A., 2017, December. Retrieving Ground Deformation Associated with Cascadia Slow Slip Events Using Sentinel-1 Data. 2017 American Geophysics Union Fall Meeting, Abstract G34A-04
- **Zheng, Y.** and Zebker, H.A., 2016, December. Crustal deformation associated with Cascadia slow slip events from InSAR time-series, 2016 American Geophysics Union Fall Meeting, Abstract S33A-2812

- **Zheng, Y.** and Zhou, S., 2014. The spatiotemporal variation of the b-value and its tectonic implications in North China, 2014 International Workshop on Statistical Seismology, Beijing, China.

FELLOWSHIPS AND AWARDS

Cecil H. and Ida M. Green Scholar, Scripps Institution of Oceanography (declined)	2019
American Geophysics Union Outstanding Student Paper Award	2017
The Joshua L. Soske Fellowship, School of Earth Sciences, Stanford University	2014

TEACHING EXPERIENCE

Teaching Assistant, Stanford University

- GP90/ESS113 Earthquakes and Volcanoes, upper level undergraduate course
- EE60N/GP60N Man versus Nature: Coping with Disasters Using Space Technology, Introductory Seminar for first-year undergraduate students.
- EE355/GP265 Imaging Radar and Applications, advanced graduate course

ACADEMIC SERVICES

- Reviewer for Journals *Remote Sensing in Earth Systems Science, IEEE Transactions on Parallel and Distributed Systems, IEEE Transactions on Geoscience and Remote Sensing, Nature Communications*
- Member of *IEEE International Geoscience & Remote Sensing Symposium* Scientific Committee
- Online Reviewer for *NASA Experimental Program to Stimulate Competitive Research (EPSCoR 2017)* research proposal

PROFESSIONAL AFFILIATION

2014 – Present: American Geophysical Union (AGU)

2016 – Present: IEEE member