

# Zhang Yunjun (张云俊)

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## EDUCATION

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<b>University of Miami</b> , Coral Gables, Florida, USA <b>Ph.D.</b> , Marine Geology and Geophysics	2019
<b>University of Chinese Academy of Sciences</b> , Beijing, China <b>M.S.</b> , Cartography and Geographic Information System	2014
<b>Wuhan University</b> , Wuhan, Hubei, China <b>B.Eng.</b> , Remote Sensing ( <i>outstanding graduate</i> )	2011

## EMPLOYMENT

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<b>California Institute of Technology</b> , Pasadena, California, USA <i>Postdoctoral Scholar Research Associate</i> , Division of Geological and Planetary Sciences	Nov 2019 - present
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## RESEARCH INTERESTS

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SAR / InSAR Algorithm and Tools Development  
Geohazards: Earthquakes, Volcanoes, Landslides  
Infrastructure Monitoring w/ High Resolution InSAR

## TEACHING INTERESTS

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Satellite Radar Interferometry  
Geological Hazards  
Applied Geodesy / Geophysics

## PUBLICATIONS

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[in prep.] **Yunjun, Z.**, Amelung, F., & Aoki, Y., Diverse Volcanic and Anthropogenic Deformation in Kyushu from L-band InSAR Time Series from 1992 to 2019.

[in prep.] **Yunjun, Z.**, Fattahi, H., Brancato, V., Simons, M., Zhu, L., Rosen, P., Absolute Tectonic Displacement Mapping from SAR Offset Time Series: Noise Reduction and Uncertainty Quantification, *Geophysical Research Letters*.

[in review] Xu, L., Meng, L., Ji, C., **Yunjun, Z.**, Fielding, E., Zinke, R., Bao, H., Sub-Shear Rupture on Bifurcating Faults: Kinematics and Dynamics of the 2021 Mw7.4 Maduo Earthquake in Qinghai, *Journal of Geophysical Research: Solid Earth*, doi:[10.1002/essoar.10511643.1](https://doi.org/10.1002/essoar.10511643.1).

[in review] Stephenson, O. L., Liu, Y. K., **Yunjun, Z.**, Simons, M., Rosen, P., Xu, X., The Impact of Plate Motions on Long-Wavelength InSAR-Derived Velocity Fields, *Geophysical Research Letters*,

doi:[10.1002/essoar.10511538.2](https://doi.org/10.1002/essoar.10511538.2).

12. Gregg, P. M., Zhan, Y., Amelung, F., Geist, D., Mothes, P., Koric, S., & **Yunjun, Z.** (2022), Forecasting mechanical failure and the 26 June 2018 eruption of Sierra Negra Volcano, Galápagos, Ecuador, *Science Advances*, 8(22), doi:[10.1126/sciadv.abm4261](https://doi.org/10.1126/sciadv.abm4261).
11. **Yunjun, Z.**, Fattahi, H., Pi, X., Rosen, P., Simons, M., Agram, P., & Aoki, Y. (2022). Range Geolocation Accuracy of C-/L-band SAR and Its Implications for Operational Stack Coregistration. *IEEE Transactions on Geoscience and Remote Sensing*, 60, doi:[10.1109/TGRS.2022.3168509](https://doi.org/10.1109/TGRS.2022.3168509).
10. Aldaajani, T., Simons, M., **Yunjun, Z.**, Bekaert, D., Almalki, K.A., Liu, Y.K., (2022). Using InSAR time series to monitor surface fractures and fissures in the Al-Yutamah Valley, Western Arabia. *Remote Sensing*, 14(8), 1769, doi:[10.3390/rs14081769](https://doi.org/10.3390/rs14081769).
9. Oliver-Cabrera, T., Jones, C. E., **Yunjun, Z.**, & Simard, M. (2021). InSAR Phase Unwrapping Error Correction for Rapid Repeat Measurements of Water Level Change in Wetlands. *IEEE Transactions on Geoscience and Remote Sensing*, 1-15, doi:[10.1109/TGRS.2021.3108751](https://doi.org/10.1109/TGRS.2021.3108751).
8. **Yunjun, Z.**, Amelung, F., & Aoki, Y. (2021), Imaging the hydrothermal system of Kirishima volcanic complex with L-band InSAR time series, *Geophysical Research Letters*, 48(11), e2021GL092879, doi:[10.1029/2021GL092879](https://doi.org/10.1029/2021GL092879).
7. **Yunjun, Z.**, Fattahi, H., & Amelung, F. (2019), Small baseline InSAR time series analysis: Unwrapping error correction and noise reduction, *Computers and Geosciences*, 133, 104331, doi:[10.1016/j.cageo.2019.104331](https://doi.org/10.1016/j.cageo.2019.104331).
6. Ge, S., Lin, G., Amelung, F., Okubo, P. G., Swanson, D. A., & **Yunjun, Z.** (2019). The accommodation of the south flank's motion by the Koa'e fault system, Kīlauea, Hawai'i: insights from the June 2012 earthquake sequence. *Journal of Geophysical Research: Solid Earth*, 124, doi:[10.1029/2018JB016961](https://doi.org/10.1029/2018JB016961).
5. Brothelande, E., Amelung, F., **Yunjun, Z.** & Wdowinski, S. (2018), Geodetic evidence for interconnectivity between Aira and Kirishima magmatic systems, Japan, *Scientific Reports*, 8(1), 9811, doi:[10.1038/s41598-018-28026-4](https://doi.org/10.1038/s41598-018-28026-4).
4. Zhang, Y. F., Zhang, Y. J., **Yunjun, Z.** & Zhao, Z., (2017), A Two-step Semi-Global Filtering Approach to extract DTM from Middle Resolution DSM, *IEEE Geoscience and Remote Sensing Letters*, 14(9), 1599-1603, doi:[10.1109/LGRS.2017.2725909](https://doi.org/10.1109/LGRS.2017.2725909).
3. Xie, C., Xu, J., Shao, Y., Cui, B., Goel, K., **Yunjun, Z.**, & Yuan, M. (2015), Long term detection of water depth changes of coastal wetlands in the Yellow River Delta based on distributed scatterer interferometry, *Remote Sensing of Environment*, 164, 238-253, doi:[10.1016/j.rse.2015.04.010](https://doi.org/10.1016/j.rse.2015.04.010).
2. **Yunjun, Z.**, Wan, Z., Xie, C., Shao, Y., Yuan, M. H., Chen, W. & Wang, X. (2015). Deformation analysis of the seawall in Qiantang Estuary with multi-temporal InSAR. *Journal of Remote Sensing*, 19(2):339-354, doi:[10.11834/jrs.20154055](https://doi.org/10.11834/jrs.20154055).
1. **Yunjun, Z.**, Xie, C., Shao, Y., & Yuan, M. (2013), Adaptive Spatial Filtering of Interferometric Data

Stacking oriented to Distributed Scatterers, *Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, XL-7/W1, 173-178, doi:[10.5194/isprsarchives-XL-7-W1-173-2013](https://doi.org/10.5194/isprsarchives-XL-7-W1-173-2013).

## GRANTS, FEOLLOWSHIPS & AWARDS

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- NASA Earth and Space Science Fellowship, 2015 - 2018
- Course Travel Grant, International Centre of Theoretical Physics at Trieste, Italy, Oct 2016
- Conference Travel Grant, Earthscope National Meeting at Vermont, USA, Jun 2015
- Course Travel Grant, UNAVCO short course on InSAR Theory and Processing, Aug 2014
- Silver Prize for Undergraduate Science “Challenge Cup”, Hubei Provincial Dept. of Edu., 2011
- National Encouragement Scholarship, Ministry of Education of P. R. China, 2010

## OPEN-SOURCE SOFTWARES

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- **COMPASS** 2021 - present  
A package for multi-temporal SAR coregistration [in early development].  
Role: Co-developer and maintainer.  
Code: <https://github.com/opera-adt/COMPASS>
- **PySolid** 2021 - present  
A Python wrapper for solid to compute solid Earth tides.  
Role: Developer and maintainer.  
Code: <https://github.com/insarlab/PySolid>
- **MintPy** 2016 - present  
A Python software for SAR / InSAR time series analysis.  
Role: Developer and maintainer.  
Code: <https://github.com/insarlab/MintPy>

## OPEN DATASETS

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6. **Yunjun, Z.**, Amelung, F., & Aoki, Y., (2021). InSAR time-series for the Kirishima volcanic complex and InSAR stack of southern Kyushu from ALOS and ALOS-2 (1.1) [Data set]. *Zenodo*. doi:[10.5281/zenodo.4661725](https://doi.org/10.5281/zenodo.4661725), [10.5281/zenodo.4499238](https://doi.org/10.5281/zenodo.4499238), [10.5281/zenodo.4499208](https://doi.org/10.5281/zenodo.4499208).
5. Fattahi, H., & **Yunjun, Z.**, (2020). InSAR stack of the San Francisco Bay in California from Sentinel-1 descending track 42 (1.1) [Data set]. *Zenodo*. doi:[10.5281/zenodo.5152543](https://doi.org/10.5281/zenodo.5152543)
4. **Yunjun, Z.**, Fattahi, H., & Amelung, F. (2019). InSAR time-series for Galápagos volcanoes, Ecuador

from ALOS and Sentinel-1 (1.1) [Data set]. *Zenodo*. doi:[10.5281/zenodo.4743058](https://doi.org/10.5281/zenodo.4743058)

3. **Yunjun, Z.**, & Amelung, F., (2019). InSAR stack of Fernandina volcano in Galápagos, Ecuador from Sentinel-1 descending track 128 (0.1) [Data set]. *Zenodo*. doi:[10.5281/zenodo.5498198](https://doi.org/10.5281/zenodo.5498198)
2. Hong, S.H., **Yunjun, Z.**, & Amelung, F., (2019). InSAR stack of the 2008 Wells, Nevada EQ from Envisat desc. track 399 (1.4) [Data set]. *Zenodo*. doi:[10.5281/zenodo.3952950](https://doi.org/10.5281/zenodo.3952950)
1. **Yunjun, Z.**, Amelung, F., & Aoki, Y., (2017). InSAR stack of Kuju volcano in Kyushu, Japan from ALOS ascending track 422 (1.4) [Data set]. *Zenodo*. doi:[10.5281/zenodo.3952917](https://doi.org/10.5281/zenodo.3952917)

## TEACHING EXPERIENCE

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- UNAVCO short course: InSAR Processing & Analysis (ISCE+; instructor) 2021 - 2022  
Teaching InSAR time series analysis with MintPy and stack processing with ISCE-2  
Recording: <https://youtu.be/QQxIY4gFHbI>  
Code: <https://github.com/parosen/Geo-SInC/tree/main/UNAVCO2022>  
*UNAVCO (virtual)*
- GE167: Tectonic Geodesy (guest lecturer) 2020  
One lecture on InSAR time series analysis  
*California Institute of Technology*
- MGS728: Advanced Seismology (guest lecturer) 2018  
One lecture on the introduction of Python programming on geophysics  
Code: [https://github.com/yunjunz/a\\_python\\_guide\\_to\\_geophysics](https://github.com/yunjunz/a_python_guide_to_geophysics)  
*University of Miami*
- MGS586/686: Geological Hazards (teaching assistant) 2016 - 2017  
Creating and teaching two course projects:
  - Coulomb stress transfer for earthquake triggering via [Coulomb3](#)
  - Volcanic ash hazard forecasting via [Ash3D](#)*University of Miami*
- MGG620: Satellite Radar Interferometry (guest lecturer) 2014  
One lecture on the persistent scatterer interferometry  
*University of Miami*

## STUDENT SUPERVISION

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- Joshua Zahner (undergraduate) 2017 - 2019

Project: Google Earth visualization of InSAR time series data, which is now part of the MintPy software ([https://mintpy.readthedocs.io/en/latest/google\\_earth/](https://mintpy.readthedocs.io/en/latest/google_earth/))

*University of Miami* (Advisor: Falk Amelung)

Alfredo Terreco (undergraduate)

2016 - 2018

Project: InSAR time series web viewer (<https://insarmaps.miami.edu>)

*University of Miami* (Advisor: Falk Amelung)

## **INVITED TALKS & SEMINARS**

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- Wuhan University, Virtual, Apr 2022.
- Southern University of Science and Technology, Virtual, Feb 2022.
- SCEC Community Geodetic Model Workshop, Virtual, Nov 2021.
- South Methodist University, Virtual, Oct 2021
- LIESMARS, Wuhan University, Virtual, Jun 2021
- Geoclub seminar, California Institute of Technology, Virtual, May 2021
- Wuhan University, Wuhan, China, Oct 2018
- China Earthquake Administration, Beijing, China, Feb 2018
- State Key Laboratory of Remote Sensing Science, Beijing, China, Feb 2018

## **ACADEMIC SERVICE**

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### COMMITTEE

- Organizing committee of the [2022 NISAR Science Community Workshop](#), Pasadena, CA.
- Organizing committee of the 2021-2022 [Caltech Seismo Lab Brown Bag Seminar](#).

### REVIEWER

- Earth, Planets and Space
- Geophysical Research Letters
- GIScience & Remote Sensing
- IEEE Transaction on Geoscience and Remote Sensing
- IEEE Geoscience and Remote Sensing Letters
- Journal of Geophysical Research: Solid Earth
- Remote Sensing of Environment
- SoftwareX