

# Zhang Yunjun (张云俊)

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## EMPLOYMENT

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Professor, Chinese Academy of Sciences, Beijing, China	Nov 2023 – present
Associate Professor, Chinese Academy of Sciences, Beijing, China	Mar 2023 – Oct 2023
Postdoctoral Scholar, California Institute of Technology, Pasadena, CA, USA	Nov 2019 – Jan 2023

## EDUCATION

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

## 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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- [under review] Zhang, B., Hestir, E., **Yunjun, Z.**, Reiter, M. E., Viers, J. H., Schaffer-Smith, D., Sesser, K., Oliver-Cabrera, T. Automate Reference Points Selection for InSAR Time Series Analysis on Segmented Wetlands in California, *IEEE Geoscience and Remote Sensing Letters*.
- [under review] Yang, Q., **Yunjun, Z.**, Wang, R. Y. Heterogeneous InSAR Tropospheric Delay Correction Based on Texture Correlation, *IEEE Transactions on Geoscience and Remote Sensing*.
15. Xu, L., Mohanna, S., Meng, L., Ji C, Ampuero, J.P., **Yunjun, Z.**, Hasnain, M., Chu, R., Liang, C. (2023). The overall-subshear and multi-segment rupture of the 2023 Mw7.8 Kahramanmaraş, Turkey earthquake in millennia supercycle, *Communications Earth & Environment*, 4(1), 379, doi:[10.1038/s43247-023-01030-x](https://doi.org/10.1038/s43247-023-01030-x).
14. Xu, L., **Yunjun, Z.**, Ji, C., Meng, L., Fielding, E., Zinke, R., Bao, H. (2023). Understanding the Rupture Kinematics and Slip Model of the 2021 Mw 7.4 Maduo Earthquake: A Bilateral Event on Bifurcating Faults, *Journal of Geophysical Research: Solid Earth*, doi:[10.1029/2022JB025936](https://doi.org/10.1029/2022JB025936).

13. Stephenson, O. L., Liu, Y. K., **Yunjun, Z.**, Simons, M., Rosen, P., Xu, X. (2022). The Impact of Plate Motions on Long-Wavelength InSAR-Derived Velocity Fields, *Geophysical Research Letters*, 49, e2022GL099835, doi:[10.1029/2022GL099835](https://doi.org/10.1029/2022GL099835).
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. Aldajani, 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, UNESCO, Oct 2016
- 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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- **MintPy** 2016 - present  
A Python software for SAR / InSAR time series analysis.  
Role: Main developer and maintainer.  
Code: <https://github.com/insarlab/MintPy>
- **PySolid** 2021 - present  
A Python wrapper for solid to compute solid Earth tides.  
Role: Core developer and maintainer.  
Code: <https://github.com/insarlab/PySolid>
- **COMPASS** 2021 - 2023  
A package for multi-temporal SAR coregistration [in early development].  
Role: Developer.  
Code: <https://github.com/opera-adt/COMPASS>

## **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 / EarthScope: InSAR short course ISCE+ (instructor) 2021 - 2023  
Role: Teach InSAR time series analysis and stack processing (Recording on [YouTube](#))  
Website: <https://www.earthscope.org/event/2023-insar-isce-short-course/>
- California Institute of Technology GE167: Tectonic Geodesy (guest lecturer) 2020  
Role: One lecture on InSAR time series analysis
- University of Miami MGS728: Advanced Seismology (guest lecturer) 2018  
Role: 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  
Role: Creating and teaching two course projects:
  - a. Coulomb stress transfer for earthquake triggering via [Coulomb3](#)
  - b. Volcanic ash hazard forecasting via [Ash3D](#)
- University of Miami MGG620: Satellite Radar Interferometry (guest lecturer) 2014  
Role: One lecture on the persistent scatterer interferometry

## **STUDENT SUPERVISION**

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|---|----------------|
| Weizhen Lin (蔺威振; Master student)   | 2023 - present |
| Yidi Wang (王祎笛; PhD student) - Primary advisor: Robert Wang (王宇)  | 2023 - present |
| Qingyue Yang (杨晴月; PhD candidate) - Primary advisor: Robert Wang (王宇)   | 2023 - present |
| Joshua Zahner (undergrad at Univ. of Miami) - Primary advisor: Falk Amelung   | 2017 - 2019    |
| Project: Google Earth visualization of InSAR time series data ( <a href="https://t.ly/0XZ28">https://t.ly/0XZ28</a> ) |                |
| Alfredo Terreo (undergrad at Univ. of Miami) - Primary advisor: Falk Amelung  | 2016 - 2018    |
| Project: InSAR time series web viewer ( <a href="https://insarmaps.miami.edu">https://insarmaps.miami.edu</a> )       |                |

## **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

- Founder and organizing committee of AIRCAS Radar Café, Beijing, China.
- Organizing committee of the [2022 NISAR Science Community Workshop](#), Pasadena, CA, USA.
- Organizing committee of the 2021-2022 [Caltech Brown Bag Seminar](#), Pasadena, CA, USA.

### REVIEWER

Remote Sensing of Environment  
IEEE Trans. Geosci. Remote Sens.  
IEEE Geosci. Remote Sens. Lett.  
Geophysical Research Letters  
J. Geophys. Res. Solid Earth  
Journal of Radars

Frontiers in Earth Science  
Earth, Planets and Space  
GIScience & Remote Sensing  
SoftwareX  
Volcanica