Zhang Yunjun (张云俊)

Professor of Electrical Engineering
Aerospace Information Research Institute
Chinese Academy of Sciences

19 North 4th Ring Road West
Haidian Dist., Beijing 100094, China
Email: yunjunz@aircas.ac.cn
Website: https://yunjunz.github.io

EMPLOYMENT

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

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 (*outstanding graduate*)	2011

RESEARCH INTERESTS

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

TEACHING INTERESTS

Satellite Radar Interferometry
Geological Hazards
Applied Geodesy / Geophysics

PUBLICATIONS

(Group members are bolded; * represents graduate students)

17. Zhang, B., Hestir, E., **Yunjun, Z.**, Reiter, M. E., Viers, J. H., Schaffer-Smith, D., Sesser, K., Oliver-Cabrera, T. (2024). Automated Reference Points Selection for InSAR Time Series Analysis on Segmented Wetlands in California, *IEEE Geoscience and Remote Sensing Letters, 21,* 4008705, doi:10.1109/LGRS.2024.3390568.

16. **Yang, Q.***, **Yunjun, Z.**, Wang, R. Y. (2024). Heterogeneous InSAR Tropospheric Delay Correction Based on Texture Correlation, *IEEE Transactions on Geoscience and Remote Sensing, 62,* 5203814, doi:10.1109/TGRS.2024.3356749.

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.

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. 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 Koaʻe fault system, Kīlauea, Hawaiʻi: 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.

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.

GRANTS, FEOLLOWSHIPS & AWARDS

- 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

- **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

TEACHING EXPERIENCE

- 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

- 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

Weizhen Lin (蘭威振; 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 (https://t.ly/0XZ28)

Alfredo Terreco (undergrad at Univ. of Miami) - Primary advisor: Falk Amelung   2016 - 2018

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

INVITED TALKS & SEMINARS

- Innov. Acad. of Precision Measurement Sci. & Tech., CAS, Wuhan, Feb 2024.
- 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

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.

EDITOR

- Journal of Remote Sensing, Early-Career Editorial Board, 2024

REVIEWER

Remote Sensing of Environment	Journal of Geodesy
IEEE Trans. Geosci. Remote Sens.	Frontiers in Earth Science
IEEE Geosci. Remote Sens. Lett.	Earth, Planets and Space
Geophysical Research Letters	GIScience & Remote Sensing
J. Geophys. Res. Solid Earth	SoftwareX
Journal of Radars	Volcanica