Zhenyi Zhang

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EDUCATION

M.E. in Geodesy and Survey Engineering   09/2020 – 06/2023(expected)

- GNSS Research Center, Wuhan University
- Supervisor: Yidong Lou and Weixing Zhang
- Areas of interest: GNSS and InSAR
- Courses: Space Geodesy, GNSS Precise Point Positioning, Satellite Orbiting Theory and Method, Optimal Estimation Theory and Method, Time Series Analysis and Applications, etc.

B.E. in Navigation Engineering   09/2016 – 06/2020

- School of Geodesy and Geomatics, Wuhan University
- GPA: 3.96/4.0, average score: 94/100, ranking 1/51
- Courses: C, Matlab, Linux, Optimal Estimation Theory, Geoscience, Geodesy, Geomatics, GNSS, GNSS Receiver Designing, GIS, Inertial Navigation, Satellite Orbiting, Astronomical Navigation, Electronic Map for Navigation, etc.

RESEARCH EXPERIENCES

GNSS Precise Point Positioning and Meteorology Applications   10/2020 – present

- Developed a high-precision GNSS data processing software, i.e., GMET, featuring flexible functions: single- and multi-system, static- and kinetic-positioning, post- and real-time, float- and fixed-ambiguity. (as lead developer)
- Accomplished the real-time GNSS-based water vapor monitoring project for China Meteorological Administration and our GMET software is working continuously on three GNSS stations until now.
- Invented a dynamic stochastic process noise model for GNSS tropospheric delay estimation, and high kinetic UAV experiments demonstrated the significant improvement of the new model for GNSS ZTD estimation.

InSAR Atmospheric Corrections and Analysis   07/2019 – 06/2022

- Developed InSAR atmospheric products producing tools and InSAR atmospheric correcting tools.
- Investigated the usability of the numerical weather models (especially ERA5 and its predecessor ERA-Interim) for InSAR atmospheric corrections and found their region- and season- and even topography-related characters.

Numerical Weather Forecast and GNSS Data Assimilation   03/2020 – present

- Accomplished the complete procedure from generating GNSS meteorology observations to assimilating them into WRF models and forcing weather forecasts.
- Obtained GNSS-based assimilated meteorological products and use them for a large number of applications such as InSAR atmospheric corrections, climate studies, and even in turn for GNSS applications and weather forecasting.

PUBLICATIONS

2022

[1] **Zhenyi Zhang**, Yidong Lou, Weixing Zhang, Hua Wang, Yaozong Zhou, Jingna Bai. (2022). "Assessment of ERA-Interim and ERA5 reanalysis data on atmospheric corrections for InSAR" *International Journal of Applied Earth Observation and Geoinformation*, 111, 102822. (SCI, impact factor: 7.672)

[2] **Zhenyi Zhang**, Yidong Lou, Weixing Zhang, Zhipeng Wang, Yaozong Zhou, Jingna Bai, Chuang Shi. (2022). "Dynamic Stochastic Model for Tropospheric Delay Estimation from GNSS Observations on UAV" *Journal of Geodesy (Under review)*. (SCI, impact factor: 4.809)

[3] Yaozong Zhou, Yidong Lou, Weixing Zhang, Jingna Bai, **Zhenyi Zhang**. "On the Accuracy and PPP Performance Evaluation of the Latest Generation of Real Time Tropospheric Mapping Function" *Geomatics and Information Science of Wuhan University* 46(12):1881-1888. (EI)

2021

[4] **Zhenyi Zhang**, Yidong Lou, Weixing Zhang, Hua Wang, Yaozong Zhou, Jingna Bai. (2021). "On the Assessment GPS-Based WRFDA for InSAR Atmospheric Correction: A Case Study in Pearl River Delta Region of China". *Remote Sensing* 13(16): 3280. (SCI, impact factor: 5.349)

[5] Yaozong Zhou, Yidong Lou, Weixing Zhang, Jingna Bai, **Zhenyi Zhang**. (2021). "An improved tropospheric mapping function modeling method for space geodetic techniques" *Journal of Geodesy*, 95, 98. (SCI, impact factor: 4.809)

[6] Jingna Bai, Yidong Lou, Weixing Zhang, Yaozong Zhou, **Zhenyi Zhang**, Chuang Shi. (2021). "Assessment and calibration of MODIS precipitable water vapor products based on GPS network over China" *Atmospheric Research*, 254, 105504. (SCI, impact factor: 5.965)

PRESENTATIONS

[1] **Zhenyi Zhang**, Weixing Zhang, Yidong Lou, Yaozong Zhou, Jingna Bai, Zhixuan Zhang. "NWM/GNSS tightly coupled tropospheric delay estimation and application on an unmanned aerial vehicle (UAV) platform", *EGU General Assembly 2022*. (Oral)

[2] **Zhenyi Zhang**, Weixing Zhang, Yidong Lou, Hua Wang, Yaozong Zhou, Jingna Bai. "On the Assessment of ERA5 and GPS-Based WRFDA for InSAR Atmospheric Correction", *Scientific Assembly of IAG 2021*. (Oral)

SOCIAL ACTIVITIES

- Class monitor (B.E.)   06/2017 – 06/2020
- Class monitor (M.E.)   09/2020 – now
- Teaching Assistant in Optimal Estimation Theory and Method   01/2019 – 01/2020
- Assistant Class Teacher   09/2019 – 09/2020

AWARDS & HONOURS

- Top Ten Youths Honour, Wuhan University   (only 10 winners per year in the university)   2020
- Excellent Bachelor's degree thesis, Wuhan University (4/450)   2020
- Distinct Graduate, School of Geodesy and Geomatics   2020
- Good Role Models Honors, Wuhan University (only 12 winners per year in Undergraduates)   2019
- Pacemaker to Merit Student (1/450)   2018&2019
- Merit Student   2017
- Outstanding student leaders, Wuhan University   2018&2019&2021
- First Prize Scholarship for Graduates, Wuhan University (¥4000)   2021
- Jin Tongyin scholarship, Wuhan University   (¥5000)   2021
- Lei Jun scholarship, Wuhan University   (¥20000, 1/450)   2019
- Yu Gang & Song Xiao scholarship, Wuhan University   (¥20000, 1/450)   2018
- National Scholarship, Ministry of Education, P. R. China(¥8000, 0.2% Chinese Undergraduates)   2017
- First Prize Scholarship, Wuhan University (¥3000)   2017&2018&2019&2021

SKILLS

Computer Skills: C, C++, Matlab, FORTRAN, Python, Perl, GMT, WRF, Microsoft Office.

Language: IELTS 7.0 (L: 8.0, R: 8.5, W: 6.0, S: 6.0, C1 level)

Personal Website: https://zyizhang.github.io/