YUANZHENG WEN

International Center for Planetary Science, Chengdu, China
(+86) 13778725385 ⋄wenyuanzheng@stu.cdut.edu.cn ⋄ www.yuanzhengwen.cn

EDUCATION

Chengdu University of Technology Sep 2018 - Jun 2022
Department of Geophysics and Space Sciences, School of Geophysics
B.S. in Space Sciences and Technology (Science Concentration) **Overall GPA:3.7/5 (86.5/100)**
Ranking: 2/90 **Major GPA: 4.1/5 (91/100)**
Standardized Test: TOEFL (R28+L30+S25+W22=105)
Core Courses:

Linear Algebra(99), Probability and Statics(92), College Physics(92/90), Mathematical Methods for Physics(91), Theoretical Mechanics(92), Fundamentals of Geophysics(95), Thermodynamics and Statistical Physics(89),Calculus(88/87), Space Exploration(92), Electrodynamics(85), General Astronomy(95), Introduction to Space Physics(90), Numerical Analysis (89)

PUBLICATION (CITATION: 3 H-INDEX:1)

1. Ionospheric TEC and plasma anomalies possibly associated with the 14 July 2019 Mw 7.2 Indonesia Laiwui earthquake, from analysis of GPS and CSES data

YZ Wen, D Tao, GX Wang et al.

Earth and Planetary Physics, doi: http://doi.org/10.26464/epp2022028

2. Statistical investigations of the flow-aligned component of IMF impact on the current sheet structure in the Martian magnetotail: MAVEN observations

YZ Wen, ZJ Rong, H Nilsson et al.

Submitted to *Journal of Geophysical Research: Space Physics*

3. Are the Significant Ionospheric Anomalies Associated with the 2007 Great Deep-Focus Undersea Jakarta-Java Earthquake?

D Tao, GX Wang, JY Zong, **YZ Wen**,et al.

Remote Sensing, doi: https://doi.org/10.3390/rs14092211

RESEARCH EXPERIENCE

Laboratory for Atmospheric and Space Physics, CU Boulder May 2022 - Present
Undergraduate Researcher **Supervisor: Prof. David Brain & Prof. Hans Nilsson**

- **Project: Joint Observations of Mars' Tail Ion Escape Evolution from MAVEN and MEX**
- Selected time periods MAVEN and MEX both observing in Mars' magnetotail along with similar trajectory clock angle.
- Compared ion time-energy spectrogram measured by MAVEN STATIC instrument and MEX IMA instrument with selected time periods.
- Compared angular distribution of heavy ions measured by MAVEN and MEX during bulk escape events.
- **This work is currently in progress.**

Institute of Geology and Geophysics, Chinese Academy of Sciences Jul 2021 - Oct 2021
Undergraduate Researcher **Supervisor: Prof. Zhaojin Rong**

- **Project: Statistical Investigations of the Flow-Aligned Component of IMF Impact on Magnetic Field Structure in Martian Magnetotail: MAVEN Observations**

- Identified current sheet crossing cases with the magnetic field and plasma data recorded by MAVEN.
- Quantitatively calculated the displacement of the Mars' magnetotail current sheet structure under different upstream IMF conditions.
- Statistically analyzed the magnetic field structure of Mars' magnetotail with $\sim$ 6 years' MAVEN magnetic field data.
- There is a systematic asymmetry in the location of the Martian magnetotail current sheet in modified MSE coordinates controlled by the flow-aligned component of IMF.
- **Oral Presentation on 2022 AOGS Meeting.**
- **First-author paper is in preparation.**

Swedish Institute of Space Physics (IRF), Kiruna Apr 2021 - Present
Unddergraduate Researcher **Supervisor: Prof. Hans Nilsson & Prof. Mats Holmstrom**

- **Project: Solar Wind and Planetary Ions Mixing Investigations in the Vicinity of Martian Tail Region with MEX and MAVEN**
- Compared mixing ratio of solar wind ions and planetary ions at different selected regions (Bow shock, magnetosheath, tail boundary, near Mars).
- Quantified the mixing degree of solar wind and planetary ions in Martian space environment with MEX and MAVEN moments.
- Identified good mixing cases based on certain criteria and derived case characters with ion energy spectrum and moments
- Compared good mixing cases with less mixing cases to look for the signatures of planetary ions acceleration and instabilities.
- **This work is currently in progress.**

National Space Science Center, Chinese Academy of Sciences Jul 2020 - Sep 2020
Undergraduate Researcher **Supervisor: Dr. Yiteng Zhang**

- **Project: MHD Simulation of Mars Space Environment**
- Visualized the MHD simulation data with Tecplot software
- Investigated the global magnetic field structure and crustal fields influences on magnetic field topology.
- Studied the global current system of Mars with MHD simulation (bow shock, magnetosheath, ionosphere, tail region) under the influence of crustal fields.
- Constructed 3D MHD models of different regions for detailed comparison of the current system in the Martian space environment and crustal fields effects on the current system.
- Compared simulation results with MAVEN MAG data and Martian global current system paper (Ramstad et al., 2020).
- **Poster presentation on Annual Meeting of Chinese Geoscience Union.**

Chengdu University of Technology Sep 2019 - Dec 2020
Undergraduate Research Assistant **Supervisor: Dr. Dan Tao**

- **Project: Investigations of Seismic Ionospheric Disturbances with GPS and CSES**
- Constructed global ionospheric map based on space-based GPS measurement.
- Analyzed total electron content (TEC) variations before selected earthquake events to detect possible disturbances.
- Cross-validation analysis based on plasma parameters recorded by China Seismo-Electromagnetic Satellite (CSES) for ionospheric TEC anomalies.
- Ionospheric disturbances in TEC and plasma parameters were observed by GPS and CSES before strong earthquakes.
- **First-author paper at *Earth and Planetary Physics***

ACADEMIC ACTIVITY

International Summer School in Planetary Sciences, USTC	Jul-Aug 2021
Space Physics Summer School, ISPAT, Peking University	Jul 2021
MACH Workshop (Virtual)	Jun 2021
35th ASPERA-3 and 27th ASPERA-4 Team Meeting, IRF-Kiruna	Feb 2021
2020 Annual Meeting of Chinese Geoscience Union (Poster), Chongqing	Oct 2020
International Summer School in Planetary Sciences, USTC	Jul-Aug 2020
CSES Mission International Workshop, Changsha, China	Oct 2019

SELECTED HONORS AND AWARDS

Undergraduate Research Fellowship, Chinese Academy of Sciences	Sep 2020/2021
Honorary Student of CAS-USTC International Summer School in Planetary Sciences	Aug 2020/2021
Honorary Student of Space Physics Summer School, ISPAT, Peking University	Jul 2021
National Scholarship, Ministry of Education of China	Sep 2020
Second Prize (Ranked Top 5% among 3000) in Mathematical Competitions (College Students), Chinese Mathematical Society	Nov 2019

TEACHING EXPERIENCE

Teaching Assistant of Mathematical Methods for Physics	Mar 2020-Jun 2020
Teaching Assistant of College Physics	Sep 2020-Jan 2021
Private Tutoring in Math, Physics and MATLAB Programming	

COMUPTER SKILLS

Programming	MATLAB, CERN ROOT, IDL (SPEDAS), Python (irfpy)
Software	Tecplot, Mathematica, ArcGIS, ENVI
Scientific Writing	Word, LaTex
Operation System	Windows, Linux (Ubuntu)

REFERENCES

Prof. Dan Tao — Assistant Professor, Chengdu University of Technology
Undergraduate Research Supervisor and Lecturer — **dan.tao@cdut.edu.cn**

Prof. David Brain — Associate Professor, University of Colorado, Boulder
Research Advisor — **david.brain@lasp.colorado.edu**

Prof. Hans Nilsson — Senior Scientist, Swedish Institute of Space Physics, Kiruna
Undergraduate Research Supervisor — **hans.nilsson@irf.se**

Prof. Zhaojin Rong — Professor, Institute of Geology and Geophysics, CAS
Undergraduate Research Supervisor — **rongzhaojin@mail.iggcas.ac.cn**

Dr. Yaxue Dong — Research Scientist, LASP
Research Advisoer — **yaxue.dong@lasp.colorado.edu**

Prof. Mats Holmstrom — Senior Scientist, Swedish Institute of Space Physics, Kiruna
Undergraduate Research Supervisor — **matsh@irf.se**

Dr. Yiteng Zhang — Associate Professor, National Space Science Center, CAS
Undergraduate Research Supervisor — **ytzhang@nssc.ac.cn**