YUANZHENG WEN

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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:86.5/100**

Ranking: 2/90   **Major GPA: 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

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 Tail Ion Escape from MAVEN and MEX**

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**

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· Selected steady IMF magnetospheric crossings of MAVEN based on steady criteria (represent the average magnetic field 30nmin before/after bow shock crossings respectively.

· Selected Current Sheet crossing cases based on magnetic field data from MAG and ion, electron energy spectrum of SWIA and SWEA.

- Applied Minimum Variance Analysis (MVA) method (Sonnerup and M.Scheible., 1998) for magnetic field to define the normal of the Current Sheet and calculated the shift distance of Current Sheet of selected cases.
- Analyzed statistical correlations between the cone angle and shift distance based on selected Current Sheet crossing cases.
- Set up the Mars-Solar-Electric field (MSE) reference frame based on selected steady IMF proxies and transformed the magnetic field data into MSE coordinates.
- Statics of the Current Sheet structure configurations in MSE coordinates under different IMF cone angle conditions. (with crustal fields, solar EUV effects considered)
- 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.
- **First-author paper is in preparation.**

Swedish Institute of Space Physics (IRF), Kiruna   Apr 2021 - Present
Research Assistant   **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**
- Made average spatial distribution of ions in Martian space environment and compared with previous publications to check validation of MEX newly produced ion moments derived from ASPERA-3 IMA.
- Compared mixing ratio of solar wind ions and planetary ions at different selected regions (Bow shock, magnetosheath, tail boundary, near Mars).
- Calculated ion moments using MAVEN STATIC C6 products based on Fraenz et al.,(2006), removed cross-talk problems of the instrument based on Brain et al., (2015) and compared results with previous publications.(Dong et al., 2015)
- 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).
- **This work was presented on Annual Meeting of Chinese Geoscience Union (Poster).**

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**
- **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**

Deputy Principal Investigator of NASA MAVEN mission

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

Principal Investigator of ESA Rosetta RPC-ICA

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

Co-Investigator of Tianwen-1 Mars Mission

Prof. Mats Holmstrom   Associate Professor, Swedish Institute of Space Physics, Kiruna
Undergraduate Research Supervisor   **matsh@irf.se**

Principal Investigator of ESA Mars Express ASPERA-3

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