

# YUANZHENG WEN

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## EDUCATION

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<b>University of Iowa</b> Department of Physics and Astronomy	Aug 2023-present Ph.D. in Physics
<b>Chengdu University of Technology</b> Department of Geophysics and Space Sciences	Sep 2018 - Jun 2022 B.S. in Space Sciences

## PUBLICATION (CITATION: 6 H-INDEX:2)

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**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

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<b>University of Colorado, Boulder</b> <i>Undergraduate Researcher</i>	May 2022 - Present <b>Supervisor: Prof. David Brain &amp; Prof. Hans Nilsson</b>
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• **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.**

<b>Institute of Geology and Geophysics, Chinese Academy of Sciences</b> <i>Undergraduate Researcher</i>	Jul 2021 - Oct 2021 <b>Supervisor: Prof. Zhaojin Rong</b>
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• **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

*Undergraduate 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.**

**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***

## SELECTED HONORS AND AWARDS

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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

## TEACHING EXPERIENCE

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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

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