Xiang He

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EDUCATION

University of Science and Technology of China (USTC) **Hefei, Anhui**
B.S. in geophysics Sep, 2020 – June, 2024

University of Texas at Austin (UT Austin) **Texas, US**
Ph.D. in Geosciences Aug, 2024 – Present

REASEARCH EXPERIENCE

- **UT Austin Jackson School of Geosciences** **Texas, US**
  Aug, 2024 – Present

Advised by Prof. Thorsten Becker (UT Austin)

- ✧ Setting up global mantle flow model to investigate deep mantle's contribution to surface vertical signals.

- **UIUC Department of Earth Science and Environmental Change** **Urbana, US**

3D Regional Model: Intraplate Deformation within East Asia (remote)
May, 2023 – Oct, 2023

Advised by Prof. Lijun Liu (UIUC)

- ✧ Investigating intraplate deformation in East Asia by including continental fault system.
- ✧ Setting up a 3D regional model and using data assimilation to add lateral viscosity heterogeneity.
- ✧ Our current result indicated faults' significance for intraplate deformation and suggested Tan-Lu Fault's sinistral transpression feature. But we failed to explain TLF's dextral transtension feature in geological time.

- **USTC School of Earth and Space Sciences** **Hefei, Anhui**

Rock Dynamics Simulation of Planetary Crust Formation Jan, 2023 – Aug, 2023
Advised by Prof. Wei Leng (USTC), in collaboration with Zhiyi Chen (USTC)
(course project)

- ✧ Using mantle convection strength's transition to explain planetary crust formation's two-stage feature: a initially rapid growth stage followed by a slower one.
- ✧ Assumed the rate of crust formation is proportional to the total amount of melting and obtained crust-growth curve by integrating melting amount curve.
- ✧ Our result showed mantle convection vigor's drop accompanied by decreasing crust formation rate, which indicated possible explanation

(continue in undergraduate thesis)

- ✧ Investigating the role of deep mantle's water on ancient continental crust formation.

- ✧ Set up a 3D regional model with a hydrated plume, which is used to generate continental crust.
- ✧ We find that generation of continental crust is almost impossible with a dry plume, which indicates the necessity of deep water's participation in this process.

The influences of the African plume on the Tethys evolution Apr, 2022 - Jun, 2024

Advised by Prof. Jinshui Huang(USTC)

- ✧ Investigating the role of Reunion plume's influence on India plate's two-stage high velocity, a short-time but much faster velocity (~200 mm/yr) followed by a longer-time but relatively slower one (>100mm/yr), towards Eurasia.
- ✧ Following previous work, set up a plume (first stage)-double subduction (second stage) coupling model.
- ✧ Current result could match the convergence history between India and Eurasia better, especially for the transition period between two stages, which supports the idea that Reunion's plume push is dramatic but only sustains for a short time.

AWARDS AND GRANTS

- **Guo Moruo Scholarship (2024, USTC)**
- **China National Scholarship (2023, top 0.2% in China)**
- **Yang Yongman Scholarship (2023, USTC)**
- **USTC Outstanding Student Scholarship Gold Medal (2022, top 3% in USTC)**
- USTC Outstanding Student Scholarship Silver Medal (2021, top 10% in USTC)
- First Prize in Natural Science Electromagnetics Essay Competition (2022, USTC)
- Zhao Jiuzhang Eath Science Honored Class Scholarship (2021 and 2022)

RESEARCH INTEREST

I am interested in large-scale geodynamic evolution, like those processes associated with subduction, mantle convection, and continental deformation. My method is to utilize computational methods, setting up models to simulate realistic events under the restrictions of geology, geophysics and geochemistry observations.

ADDITIONAL INFORMATION

- **Teaching Assistant Experience (USTC)**

Course: Electromagnetism A (PHYS1004A.04.2023SP)
Instructor: Prof. Gan Qin (USTC)
Dates: Mar – Jun, 2023

- **Skills & Languages**
  - ✧ Programming Languages: C, MATLAB, Fortran, Python
  - ✧ Software: CitcomS, GMT6, ASPECT, GPlates