

# Jiawei Da

POSTDOCTORAL FELLOW

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*I am passionate about playing a positive role in advancing our understanding of the dynamic interaction between the Earth's climate system and the global carbon cycle.*

## Education

### Nanjing University

Nanjing, Jiangsu, China

PHD, GEOLOGY

2015-2020

- Recipient of the Best Doctoral Dissertation Award, Nanjing University (2020)
- Recipient of Outstanding Ph.D. student award (2020)
- Recipient of Li Siguang Outstanding Ph.D. Candidate Award (2020), National award to five Ph.D. candidates majored in Geology per year in recognition of high academic achievements
- **Thesis:** Quantitative reconstruction of paleoatmospheric CO<sub>2</sub> levels using pedogenic carbonates from the Chinese Loess Plateau
- Recipient of Program A for outstanding Ph.D. students (2018) awarded to students with academic merit to support innovative project proposals

### Nanjing University

Nanjing, Jiangsu, China

MD SWITCHED TO PHD, GEOCHEMISTRY

2013-2015

- Recipient of the First Prize of National Scholarship (2015) awarded to students with outstanding academic achievement

### Jilin University

Changchun, Jilin, China

BSC, GEOLOGY

2008-2012

## Research Experience

### The University of Texas at Austin

Austin, Texas, USA

POSTDOCTORAL FELLOW, JACKSON SCHOOL OF GEOSCIENCES

Aug 22–Present

- Improve and integrate the proxy system models of soil carbonate isotopes in a Bayesian framework to better reconstruct paleoclimate
- Explore the potential isotope fractionation during the pretreatment of soil organic carbon isotope measurement by applying different pretreatment methods on a variety of soil types
- I apply multiple geochemical and modeling approaches to reconstruct Miocene-Pliocene atmospheric CO<sub>2</sub> levels and regional climate based on paleosols from the Chinese Loess Plateau
- Recipient of UT Staff Council Professional Development Grant (2023, 1500\$)
- My postdoc work involves the application of novel isotope measurement techniques and proxy system models to better understand the relationship between Earth's climate and the global carbon cycle by integrating and modernizing existing paleosol-CO<sub>2</sub> records

### Nanjing University

Nanjing, Jiangsu, China

POSTDOCTORAL FELLOW, SCHOOL OF EARTH SCIENCES AND ENGINEERING

Sep 20–Aug 22

- Recipient of the NSF-China Earth Sciences Postdoctoral Fellowship (2021, 45000\$)
- My work here mainly focuses on reconstructing Miocene-Pliocene paleoclimate using soil carbonates from the Chinese Loess Plateau
- Explore the subsoil organic matter decomposition and associated carbon isotope fractionation using a variety of geochemical tools
- Examine the seasonality of pedogenic carbonate growth during Pleistocene glacial cycles based on oxygen isotope geochemistry

### Nanjing University

Nanjing, Jiangsu, China

LAB MANAGER, KEY LABORATORY OF SURFICIAL GEOCHEMISTRY, MINISTRY OF EDUCATION

Oct 18–Aug 22

- I was awarded the best laboratory management award in recognition of my management of the spectral lab

### Nanjing University

Nanjing, Jiangsu, China

RESEARCH ASSISTANT, KEY LABORATORY OF SURFICIAL GEOCHEMISTRY, MINISTRY OF EDUCATION

Sep 15–Jun 20

- I helped maintain the daily operation of the spectral lab and training students and visitors to operate several spectral instruments
- I helped develop a method to quantify carbonate content in soil samples with greater speed and precision, using FTIR technique

# Teaching and Supervision

**Undergraduate Student Supervisor**  
SCHOOL OF EARTH SCIENCES AND ENGINEERING, NANJING UNIVERSITY

*Nanjing, Jiangsu, China*  
*Oct 2016–Jun 2017*

- Designed and co-supervised a research project in geochemistry for a Geochemical undergraduate student (Jinjin Yang)
- Research Project: Carbon content and redness distribution in the Quaternary loess-paleosol sequence from Lantian, Shaanxi

**Undergraduate Student Supervisor**  
SCHOOL OF EARTH SCIENCES AND ENGINEERING, NANJING UNIVERSITY

*Nanjing, Jiangsu, China*  
*Jan–Jun 2019*

- Designed and co-supervised a research project in geochemistry for a Geological undergraduate student (Xia Wang)
- Research Project: The spatiotemporal distributions of carbonate minerals in different grain-size fractions on the Chinese Loess Plateau

**Undergraduate Student Supervisor**  
SCHOOL OF EARTH SCIENCES AND ENGINEERING, NANJING UNIVERSITY

*Nanjing, Jiangsu, China*  
*Jan–Jun 2022*

- Designed and co-supervised a research project in geochemistry for a Geochemical undergraduate student (Ruiqing Ji)
- Research Project: Exploring the relationship between the size of single pedogenic carbonate crystal and regional climate

**PhD Student Co-Supervisor**  
SCHOOL OF EARTH SCIENCES AND ENGINEERING, NANJING UNIVERSITY

*Nanjing, Jiangsu, China*  
*Jan 2021–Aug 2022*

- Co-supervise a Geological PhD student (Jun Mu) on stable potassium isotope geochemistry
- Research Project: Potassium isotopic constraints on the provenance of Chinese eolian deposits since 6 Ma

**PhD Student Co-Supervisor**  
SCHOOL OF EARTH SCIENCES AND ENGINEERING, NANJING UNIVERSITY

*Nanjing, Jiangsu, China*  
*Sep 2020–Aug 2022*

- Co-supervise a Geological PhD student (Hanzhao Zhai) on clay mineralogy
- Research Project: Clay mineralogy of the eolian deposits on the Chinese Loess Plateau and its association with regional rainfall

**Laboratory Demonstrator**  
KEY LABORATORY OF SURFICIAL GEOCHEMISTRY, MINISTRY OF EDUCATION, NANJING UNIVERSITY

*Nanjing, Jiangsu, China*  
*Jul 2015–Aug 2020*

- Train and supervise students and lab visitors on the operation of spectral instruments

# Leadership, Service & Community Engagement

**Manuscript peer-review:** *Science Advances* (1), *Paleoecology*, *Paleoclimatology*, *Paleogeography* (2), *Scientific Reports* (1)

# Skills

Laboratory	Analytical	Programming	Software/Tools
sample digestion	Fourier Transform Infrared Spectroscopy (FTIR)	Rstudio	Arcgis
grain size separation	Isotope Ratio Mass Spectrometer (IRMS)	MatLab	Coreldraw
free iron extraction	Elemental Analyzer (EA)		HYDRUS-1D
chemical oxidation	Inductively Coupled Plasma Optical Emission Spectroscopy (ICP-OES)		LaTex
	Scanning Electronic Microscopy (SEM)		

## Peer-reviewed Publications

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\*indicates corresponding author

### 2023

**Da, J.\***, Li, G. K., & Ji, J. (2023). *Seasonal changes in the formation time of pedogenic carbonates on the Chinese Loess Plateau during Quaternary glacial cycles*. **Quaternary Science Reviews**. (<https://doi.org/10.1016/j.quascirev.2023.108008>)

Bao, R., Sheng, X., Meng, X., Li, T., Li, C., Shen, H., **Da, J.**, Ji, J., & Chen, J. (2023). *100 ky pacing of the East Asian summer monsoon over the past five glacial cycles inferred from land snails*. **Geology**.

### 2022

Meng, X., Li, G. K., Liu, L., Long, X., Zhao, W., **Da, J.**, & Ji, J. (2022). *Decoupled paleosol-based proxies in Chinese loess deposits: Role of leaching and illuviation processes*. **Quaternary Science Reviews**.

### 2021

**Da, J.**, Li, G. K., & Ji, J. (2021). *Overestimate of  $C_4$  Plant Abundance Caused by Soil Degradation-Induced Carbon Isotope Fractionation*. **Geophysical Research Letters**.

### 2020

**Da, J.**, Zhang, Y. G., Li, G., & Ji, J. (2020). *Aridity-driven decoupling of  $\delta^{13}C$  between pedogenic carbonate and soil organic matter*. **Geology**.

### 2019

**Da, J.**, Zhang, Y. G., Li, G., Meng, X., & Ji, J. (2019). *Low  $CO_2$  levels of the entire Pleistocene epoch*. **Nature communications**.

### 2015

**Da, J.**, Zhang, Y. G., Wang, H., Balsam, W., & Ji, J. (2015). *An Early Pleistocene atmospheric  $CO_2$  record based on pedogenic carbonate from the Chinese loess deposits*. **Earth and Planetary Science Letters**.

## Publications under Process

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- **Da, J.\***, Li, T., Breecker, D.O., Li, G., Lu, H., Ji, J. *A wetter East Asia during the early Pliocene indicated by calcite nodules from the Chinese Loess Plateau*. (under review)
- **Da, J.**, Zhang, Y. G., Li, G.K., Breecker, D.O., Ji, J., *The gradual decline of glacial  $CO_2$  levels during the early Pleistocene*. (in prep)
- **Da, J.\***, Li, G.K., Breecker, D.O., Ji, J., *An active deep soil carbon pool in a paleosol system* (in prep)
- Mu, J., **Da, J.**, Ji, J., Li, W., *Potassium isotopic constraints on the provenance of Chinese eolian deposits since ~6 Ma* (in prep)

## Selected presentations

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**Invited talk at the 2023 Paleoclimatology Group Seminar series, virtual.**

2023

ATMOSPHERIC  $pCO_2$  RECONSTRUCTION BASED ON CHINESE LOESS

**Invited to speak in the Weather, Climate, Earth seminar series at Jackson School of Geosciences, The University of Texas at Austin.**

2022

RECONSTRUCTING PAST ATMOSPHERIC  $CO_2$  LEVELS WITH PEDOGENIC CARBONATES FROM THE CHINESE LOESS DEPOSITS

**Oral presentation at the 2022 INQUA LoessFest, virtual.**

2022

RECONSTRUCTING PLEISTOCENE ATMOSPHERIC  $CO_2$  LEVELS USING PEDOGENIC CARBONATES FROM THE CHINESE LOESS PLATEAU

**Oral presentation at the 8th biology and organic geochemistry conference, Xiamen, China.**

2021

CARBON ISOTOPE FRACTIONATION DURING THE BURIAL AND DECOMPOSITION OF SOIL ORGANIC MATTER – EVIDENCE FROM THE PALEOSOLS ON THE CHINESE LOESS PLATEAU

**Oral presentation at the 6th conference on Earth System Science, Shanghai, China.**

2021

QUANTITATIVE CONSTRAINT OF THE EFFECT OF ATMOSPHERIC CO<sub>2</sub> ON THE C ISOTOPIC COMPOSITIONS OF PEDOGENIC CARBONATES ON THE CHINESE LOESS PLATEAU

**Oral presentation at the Goldschmidt conference, virtual.**

2020

REFINING THE PALEOSOL-CO<sub>2</sub> PROXY AND THE RECONSTRUCTION OF EARLY-PLEISTOCENE CO<sub>2</sub> LEVELS

**Poster presentation at the Goldschmidt conference, Yokohama, Japan.**

2016

RECONSTRUCTING PAST ATMOSPHERIC CO<sub>2</sub> LEVELS WITH PEDOGENIC CARBONATES FROM THE CHINESE LOESS DEPOSITS