Dr. Jiawei Da

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EDUCATION

Nanjing University, China 2013-2020
Ph.D. in Geology 2015-2020
Thesis: *Quantitative reconstruction of paleoatmospheric CO_2 levels using pedogenic carbonates from the Chinese Loess Plateau*
Advisor: Dr. Junfeng Ji
MS (en route) in Geochemistry 2013-2015

Jilin University, China 2008-2012
B.S. in Geology

RESEARCH EXPERIENCE

Postdoctoral Fellow 2022/08-now

The University of Texas at Austin, Jackson School of Geosciences

Fellowship funded by NSF-FRES project

Advisor: Dr. Daniel O Breecker

- Documenting and modernizing published CO_2 records from a suite of proxies, with a goal of building a statistically robust and fully integrated Phanerozoic CO_2 curve
- Utilized stable carbon and oxygen isotopes, clumped isotope thermometry, and triple oxygen isotope techniques to understand climate and ecosystem change recorded in the geologic record
- Developing a forward, multi-isotope proxy system model for soil carbonate to quantitatively and simultaneously reconstruct various environmental variables
- Developed a pretreatment method capable of precise carbon isotopic analysis on organic matter with trace quantities in clay-rich soils

'Yuxiu Young Scholar Program' Postdoctoral Researcher 2020/09 – 2022/08

Nanjing University, School of Earth Sciences and Engineering

Advisor: Dr. Xiancai Lu

- Explored the variations and controls of Pliocene hydroclimate over East Asia through a multi-proxy approach based on soil carbonate
- Determined the formation season of and the paleoclimate information recorded in pedogenic carbonates from the Chinese Loess Plateau, using stable isotope and numerical modeling approaches
- Investigated the carbon isotopic fractionation of soil organic matter during post-burial diagenesis using elemental, stable isotope, and radiocarbon analyses

Research Assistant 2015/09 – 2020/07

Nanjing University, Key Laboratory of Surficial Geochemistry, Ministry of Education

Advisor: Dr. Junfeng Ji

- Co-developed a fast measurement technique of soil carbonate with trace quantities (<10%) using Fourier Transform InfRared Spectroscopy (FTIR)
- Maintained the daily operation of FTIR and UV/VIS/NIR spectrometer

PUBLICATIONS

PUBLISHED

Da, J., Zhang, Y. G., Wang, H., Balsam, W., Ji, J., An Early Pleistocene atmospheric CO_2 record based on pedogenic carbonate from the Chinese loess deposits, *Earth and Planetary Science Letters*, 2015, 426: 69-75. https://doi.org/10.1016/j.epsl.2015.05.053

Da, J., Zhang, Y. G., Li, G., Meng, X., Ji, J., Low CO_2 levels of the entire Pleistocene Epoch, *Nature Communications*, 2019, 10(1): 1-9. https://doi.org/10.1038/s41467-019-12357-5

Da, J., Zhang, Y. G., Li, G., Ji, J., Aridity-driven decoupling of $\delta^{13}C$ between pedogenic carbonate and soil organic matter, *Geology*, 2020, 48(10): 981-985. https://doi.org/10.1130/G47241.1

Da, J., Li, G., Ji, J., Overestimate of C_4 plant abundance caused by soil degradation-induced carbon isotope fractionation, *Geophysical Research Letters*, 2021, 48(24): e2021GL093407 https://doi.org/10.1029/2021GL093407

Bao, R., Sheng, X., Meng, X., Li T., Li, C., Shen, H., **Da, J.**, Ji, J., Chen, J., 100 ky pacing of the East Asian summer monsoon over the past five glacial cycles inferred from land snails, *Geology*, 2022. https://doi.org/10.1130/G50243.1

Meng, X., Li, G. K., Liu, L., Long, X., Zhao, W., **Da, J.**, & Ji, J., Decoupled paleosol-based proxies in Chinese loess deposits: Role of leaching and illuviation processes. *Quaternary Science Reviews*, 2022, 298, 107847. https://doi.org/10.1016/j.quascirev.2022.107847

Da, J.*, Li, G.K., Ji, J., Seasonal changes in the formation time of pedogenic carbonates on the Chinese Loess Plateau during Quaternary glacial cycles, *Quaternary Science Reviews*, 2023, 305, 108008 https://doi.org/10.1016/j.quascirev.2023.108008

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, *Paleoceanography and Paleoclimatology*, 2023, 38(7), e2023PA004615 https://doi.org/10.1029/2023PA004615

Hönisch, B., …, **Da, J.**, …, Towards a Cenozoic History of Atmospheric CO_2, Science, 2023, in press

IN PREP/IN REVIEW

* graduate mentee

Da, J., Li, G.K., Breecker, D.O., Ji, J., An active deep soil carbon pool in a paleosol system (under revision)

Da, J., Zhang, Y. G., Li, G.K., Breecker, D.O., Ji, J., Continual decline of glacial CO_2 during the Pleistocene epoch (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)

Zhai, H.*, **Da, J.**, Ji J., A warm dry Pliocene hydroclimate over East Asia documented by smectite content from the Chinese Loess Plateau (in prep)

Sakthivel, T., Ghosh, P., Nair, N., **Da, J.**, Plio-Pleistocene CO_2 drawdown regulated by wildfire-induced terrestrial organic carbon burial (in prep)

HONORS AND AWARDS

NSF CO_2PIP Project Postdoctoral Fellowship 2022

NSF-China Earth Sciences Postdoctoral Fellowship 2021

Best Doctoral Dissertation Award, Nanjing University 2021

Li Siguang Outstanding Ph.D. Candidate Award 2020
National award to five selective Ph.D. candidates majored in Geology per year
in recognition of high academic achievements

Outstanding Ph.D. student, Nanjing University 2020

Program A for outstanding Ph.D. students, Nanjing University 2018

First Prize of National Scholarship 2015

GRANTS

UT Staff Council Professional Development Grant ($1500) 2023

National Natural Science Foundation of China (300,000 RMB) 2021

China Postdoctoral Science Founadtion (50,000 RMB) 2021

Goldschmidt Travel Grant ($1000) 2016

CONFERENCE PRESENTATIONS

G. Bowen, D. Harper, **J. Da**, B. Hönisch, I.P. Montanez, Toward an omni-proxy reconstruction of Cenozoic CO_2, Talk, *The Geological Science of America Meeting*, Pittsburgh, Pennsylvania, October 2023

J. Da, D. Breecker, H. Lu, J. Ji. A humid East Asia during the early Pliocene indicated by calcite nodules from the Chinese Loess Plateau, **Invited talk**, *The Geological Science of America Meeting*, Pittsburgh, Pennsylvania, October 2023

J. Da, G.K. Li, J. Ji, *Seasonal changes in the formation time of pedogenic carbonates on the Chinese Loess Plateau during Quaternary glacial cycles*, Talk, Goldschmidt conference, Leon, France (2023)

J. Da, Y.G. Zhang, G.K. Li, J. Ji, Reconstructing Pleistocene atmospheric CO_2 levels using pedogenic carbonates from the Chinese Loess Plateau, INQUA LoessFest, Virtual (2022)

J. Da, G.K. Li, J. Ji, Carbon isotope fractionation during the burial and decomposition of soil organic matter – evidence from the paleosols on the Chinese Loess Plateau, Talk, 8th biology and organic geochemistry conference, Xiamen, China (2021)

J. Da, J. Ji, Quantitative constraint of the effect of atmospheric CO_2 on the C isotopic compositions of pedogenic carbonates on the Chinese Loess Plateau, Talk, the 6th conference on Earth System Science, Shanghai, China (2021)

J. Da, Y.G. Zhang, G. Li, X. Meng, J. Ji, Refining the paleosol-CO_2 proxy and the reconstruction of early-Pleistocene CO_2 levels, Talk, Goldschmidt virtual (2020)

J. Da, J. Ji, Reconstructing past atmospheric CO_2 levels with pedogenic carbonates from the Chinese loess deposits, Poster, Goldschmidt Yokohama, Japan (2016)

TALKS

Continual glacial CO_2 drawdown recorded by paleosols from the Chinese Loess Plateau, *Center for Stable Isotope Seminar, The University of New Mexico, Albuquerque, NM* — 2023

Reconstructing Pleistocene atmospheric CO_2 levels using paleosols from the Chinese Loess Plateau, *Paleoclimatology Group Seminar, vitual* — 2023

Reconstructing past atmospheric CO_2 levels with pedogenic carbonates from the Chinese loess deposits, *Weather, Climate, Earth seminar, Jackson School of Geosciences, The University of Texas at Austin, Ausin, TX* — 2022

SKILL SETS

Lab techniques: Isotope Ratio Mass Spectrometer (IRMS), Elemental Analyzer (EA), Scanning Electronic Microscopy (SEM), Fourier Transform InfraRed spectroscopy (FTIR), clumped isotope measurement, wet chemistry lab sample processing, sediment sample preparation.
Programming and Software: R, Matlab, CorelDRAW, ArcGIS, Panoply
Languages: Chinese (native speaker), English (fluent).

OUTREACH AND SERVICES

Reviewer for *Science Advances*, *Geophysical Research Letters*, *Paleoecology Paleoclimatology Paleogeography,* and *Scientific Report*

Convenor: AGU paleoclimatology and paleoceanography session 2023

Outstanding Student Presentation Award (OSPA) Liasion: AGU paleoclimatology and paleoceanography session 2023

COURSEWORK

Paleoclimatology, Isotope Geochemistry, Data analysis, Aqueous Geochemistry

FIELD EXPERIENCE

Chinese Loess Plateau 2013-2021

Led and participate in field trips to collect samples from multiple Quaternary loess-paleosol and Miocene-Pliocene Red Clay sections, bulit a soil CO_2 monitoring site in 2019 and accumulated hourly data for a whole year.

Xorkol Basin July 2019

Led field trips to Xorkol Basin, Mount Altai at the northeastern Tibetan Plateau, where paleosol and calcite nodule samples were collected from an Eocene eolian deposit.

Qujing, Yunnan January 2018

Participated in field trips to Qujing, Yunnan Province, where we collected samples of paleosols, calcite nodules, and fossil leaves from the early Devonian Xujiachong Formation.

Membership

Geological Society of America	2022-Present
American Geophysical Union	2020-Present
Geochemical Society	2016-Present