Ying Cui

Curriculum Vitae
December 19, 2022

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EDUCATION

2010 – 2014 **Pennsylvania State University**, University Park, Pennsylvania
Ph.D. Dual Titles in Geosciences and Biogeochemistry, Advisors: Lee R. Kump and Katherine Freeman. Dissertation title: "*Assessment of Climate Change and Global Carbon Cycle Perturbation during the End-Permian Mass Extinction*"

2008 – 2010 **Pennsylvania State University**, University Park, Pennsylvania
M.S., Geosciences, Advisor: Lee R. Kump. Thesis title: "*Carbon Addition during the Paleocene-Eocene Thermal Maximum: Model Inversion of a New, High-Resolution Carbon Isotope Record from Svalbard*"

2005 – 2008 **Peking University**, Beijing, China
M.S., Geosciences (Stratigraphy and Paleontology), Advisor: Jianbo Liu

2001 – 2005 **China University of Geosciences (Beijing)**, China.
B.E., Gemology (Petrology and Mineralogy Discipline), Advisor: Xuehui Yu

PROFESSIONAL APPOINTMENTS

Assistant Professor (tenure-track), Department of Earth and Environmental Studies, Montclair State University (September 1st, 2018 to present)

Joseph B. Obering Postdoctoral Fellow (with teaching role), Department of Earth Sciences, Dartmouth College (July 1st, 2016 to August 31st, 2018, Advisor: Xiahong Feng)

Postdoctoral Researcher, School of Geosciences, University of Louisiana at Lafayette (January, 2015 to June 2016, Advisor: Brian Schubert)

PUBLICATIONS

Google Scholar (39 Peer-reviewed publications, 5 manuscripts are *in review* or *in revision*; 1 news and views, 9 manuscripts are *to be submitted*; Google H-index = 20, i10-index = 23, Citation = 1437, http://goo.gl/MjJ9gr)

Manuscripts in Review or Revision (*indicates student author)

1. G. Luo, G. Love, D. Chu, **Y. Cui**, Y. Zhang, Z. Chen, W. Zhou, X. Ruan, S. Xie. Catastrophic precipitation and upper-ocean freshening due to a Triassic hothouse climate. (*Nature Geoscience; in review*)
2. Y. Wu*, **Y**. **Cui,** D. Chu, H. Song, J. Tong, J. Dal Corso, and A. Ridgwell. Volcanic CO_2 degassing postdates thermogenic carbon emission during the end-Permian mass extinction. (*Science Advances*; *in review after first revision*)
3. S. Jiang, Y. Cui, Y. Wang, M. De Palma*, D. Naafs, J. Jiang, X. Hu, H. Wu, R. Chu, Y. Gu, J. Wang, Y. Huang, M. Ingalls, T. Bralower, and J. Zachos. Increased climate instability prior to and during the PETM. (*Nature Communications; in revision*)
4. F. Ye, L. Zhao, L. Zhang, **Y. Cui**, T. Algeo, Z.Q. Chen, Z. Lyu, Y. Huang, M. Ghulam, and A. Bhat. Calcium isotope reveals shelf acidification on southern margin of Neotethys (Guryul Ravine, Kashmir) during the Smithian-Spathian boundary cooling event. (*Global and Planetary Change; in review*)

Peer-Reviewed Publications (*denotes student author)

Journal Articles

5. W. Wang, F. Zhang, S. Zhang, **Y. Cui**, Q. Zheng, Y. Zhang, D. Yuan, H. Zhang, Y. Xu, and S. Shen. Ecosystem responses of two Permian biocrises modulated by CO_2 emission rates. *Earth and Planetary Science Letters 602*: 117940. https://doi.org/10.1016/j.epsl.2022.117940
6. Wang, Y., Cui, Y., Su, H., Jiang, J., Wang, Y., Yang, Z., Hu, X. and Jiang, S., 2022. Response of calcareous nannoplankton to the Paleocene–Eocene Thermal Maximum in the Paratethys Seaway (Tarim Basin, West China). Global and Planetary Change: 103918. https://doi.org/10.1016/j.gloplacha.2022.103918
7. Y. Dong*, L. Calderón Convers*, S. Jiang, X. Li, P. Zhu, H. Chen and **Y**. **Cui**. Paleoenvironment of the southeastern Tethys in the Early Eocene (2022). *Global and Planetary Change* 215: 103875. https://doi.org/10.1016/j.gloplacha.2022.103875
8. Zhang, F., R. G. Stockey, S. Xiao, S.-z. Shen, T. W. Dahl, G.-Y. Wei, M. Cao, Z. Li, J. Kang, **Y. Cui**, A. D. Anbar and N. J. Planavsky (2022). Uranium isotope evidence for extensive shallow water anoxia in the early Tonian oceans. *Earth and Planetary Science Letters* 583: 117437. https://doi.org/10.1016/j.epsl.2022.117437
9. Zhang, H., Zhang, F., Chen, J.-b., Erwin, D.H., Syverson, D.D., Ni, P., Rampino, M., Chi, Z., Cai, Y.-f., Xiang, L., Li, W.-q., Liu, S.-A., Wang, R.-c., Wang, X.-d., Feng, Z., Li, H.-m., Zhang, T., Cai, H.-m., Zheng, W., **Cui, Y.**, Zhu, X.-k., Hou, Z.-q., Wu, F.-y., Xu, Y.-g., Planavsky, N. and Shen, S.-z., 2021. Felsic volcanism as a factor driving the end-Permian mass extinction. *Science Advances* 7, eabh1390 (2021). doi:10.1126/sciadv.abh1390

10. Y. Dong*, **Y. Cui**, J. Wang, F. Zhang, Y. Wu, S. Jiang, Z. Li. Paleozoic carbon cycle dynamics: Insights from stable carbon isotopes in carbonate and C_3 land plants. *Earth-Science Reviews* 222, 203813 (2021). DOI: https://doi.org/10.1016/j.earscirev.2021.103813
11. **Y. Cui,** M. Li, E. E. van Soelen, F. Peterse and W. M. Kürschner. Massive and rapid predominantly volcanic CO_2 emission during the end-Permian mass extinction. *Proceedings of the National Academy of Sciences* 118, 37 (2021), e2014701118. DOI: 10.1073/pnas.2014701118
12. **Y. Cui**, A. Diefendorf, L. Kump, S. Jiang, and K. Freeman. Synchronous marine and terrestrial carbon cycle perturbation in the High Arctic during the PETM. *Paleoceanography and Paleoclimatology* (2021). *DOI: https://doi.org/10.1029/2020PA003942*)
13. Y. Wu*, D. Chu, H. Song, J. Dal Corso, P. Wignall, H. Song, Y. Du, J. Tong, and **Y. Cui**. Six-fold increase of atmospheric pCO_2 during the Permian-Triassic mass extinction. *Nature Communications* 12, 2137 (2021). *DOI: https://doi.org/10.1038/s41467-021-22298-7*
14. T. Wong, **Y. Cui**, D. Royer and K. Keller. A tighter constraint on Earth-system sensitivity from long-term temperature and carbon-cycle observations. *Nature Communications* (2021).
15. S. Jiang, **Y. Cui** and Y. Wang. Changes in the global carbon cycle during Eocene Thermal Maximum 2 and H2: evidence from tropical Atlantic. *Geoscience Frontiers*, 3: 1966-1973 (2021). *DOI:* https://doi.org/10.1016/j.gsf.2020.07.014
16. Y. Dong*, S. Xu, L. Wen, H. Chen, S. Fu, Y. Zhong, J. Wang, P. Zhu, **Y. Cui**. Tectonic control of Guadalupian-Lopingian cherts in northwestern Sichuan Basin, South China. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 557: 109915 (2020). *DOI: https://doi.org/10.1016/j.palaeo.2020.109915*
17. Y. Wu, W. Wang, H. Jiang, **Y. Cui**, R. Zhao, Z. Huang, Z. Yang, Y. Chen. Evolution patterns of seawater carbon isotope composition during Cambrian and their stratigraphic significance. *Geological Journal*, 56: 457-474 (2020). *DOI*: https://doi.org/10.1002/gj.3957
18. **Y. Cui,** B. Schubert, and H. Jahren. A 23 m.y. record of low atmospheric CO_2, *Geology*, 48 (9): 888-892 (2020). DOI: https://doi.org/10.1130/G47681.1
19. Y. Dong*, H. Chen, J. Wang, M. Hou, S. Xu, P. Zhu, C. Zhang, and **Y. Cui**. Thermal convection dolomitization induced by the Emeishan Large Igneous Province. *Marine and Petroleum Geology*, 116: 104308, (2020). DOI: https://doi.org/10.1016/j.marpetgeo.2020.104308
20. P. Zhu, Y. Dong*, M. Chen, Z. Li, B. Han, J. Wang, and **Y. Cui**. Quantitative evaluation of pore structure from mineralogical and diagenetic information

extracted from well logs in tight sandstone. *Journal of Natural Gas Science and Engineering*, 103376 (2020). DOI: https://doi.org/10.1016/j.jngse.2020.103376

21. F. Zhang, S. Shen, **Y. Cui**, T. W. Dahl, T. Lenton, H. Zhang, K. Krainer, Q. Zheng, and A. Anbar. Two distinct episodes of marine anoxia during the Permian-Triassic crisis evidenced by uranium isotopes in marine dolostones. *Geochimica et Cosmochimica Acta*, 297: 165-179 (2020). DOI: https://doi.org/10.1016/j.gca.2020.01.032
22. F. Zhang, T. Algeo, T.W. Dahl, T. Lenton, G. Luo, S. Shen, T. Algeo, N. Planavsky, J. Liu, **Y. Cui**, W. Qie, S. Romaniello, and A. Anbar. Extensive marine anoxia associated with the Late Devonian Hangenberg Crisis. *Earth and Planetary Science Letter*, 533: 115976 (2020). DOI: https://doi.org/10.1016/j.epsl.2019.115976
23. Y. Wu*, J. Tong, T. Algeo, D. Chu, **Y. Cui**, H. Song, W. Shu, and Y. Du. Organic carbon isotopes in terrestrial Permian-Triassic boundary sections of North China: implications for global carbon cycle perturbations. *GSA Bulletin*, 132 (5-6): 1106–1118 (2019). *DOI:* https://doi.org/10.1130/B35228.1
24. C. Hollis, T.D. Jones, E. Anagostou, P. Bijl, M. Cramwinckel, **Y. Cui**, G.R. Dickens etc. The DeepMIP contribution to PMIP4: methodologies for selection, compilation and analysis of latest Paleocene and early Eocene climate proxy data, incorporating version 0.1 of the DeepMIP database. *Geoscientific Model Development Discussion*, 1-98, (2019). DOI: https://doi.org/10.5194/gmd-12-3149-2019
25. T. Chapman*, **Y. Cui**, B. Schubert. The carbon isotope value of long chain *n*-alkanes as a proxy for paleo-pCO_2. *ACS Earth and Space Chemistry*, 3: 1966-1973 (2019). DOI: https://doi.org/10.1021/acsearthspacechem.9b00146
26. F. Zhang, T. Algeo, **Y. Cui**, J. Shen, H. Sano, H.D. Rowe, and A.D. Anbar. Global-ocean redox variation across the Smithian-Spathian boundary linked to concurrent climatic and biotic changes. *Earth-Sciences Review*, 195: 147-168 (2019), DOI: https://doi.org/10.1016/j.earscirev.2018.10.012
27. **Y. Cui** and B. Schubert. Towards determination of the source and magnitude of atmospheric pCO_2 change across the early Paleogene hyperthermals. *Global and Planetary Change*, 170: 120-125 (2018), DOI: https://doi.org/10.1016/j.gloplacha.2018.08.011 (*Invited*).
28. G. Luo, C. Junium, G. Izon, S. Ono, N. Beukes, T. Algeo, **Y. Cui**, S. Xie, R. Summons. Dynamic evolution of the marine nitrogen cycle in response to planetary oxygenation. *Nature Communication*, 9: 978 (2018), DOI: 10.1038/s41467-018-03361-2.
29. F. Zhang, T. Algeo, S. Romaniello, **Y. Cui**, L. Zhao, Z. Chen, A. Anbar. Congruent Permian-Triassic $\delta^{238}U$ records at Panthalassic and Tethyan sites:

confirmation of global-oceanic anoxia and validation of the U-isotope paleoredox proxy. *Geology* (2018), DOI: https://doi.org/10.1130/G39695.1

30. **Y. Cui** and B. Schubert. Atmospheric pCO_2 reconstructed across five early Eocene global warming events. *Earth and Planetary Science Letters*, 478: 225-233 (2017). DOI: 10.1016/j.epsl.2017.08.038
31. **Y. Cui**, A. Bercovici, J. Yu, L. R. Kump, K. H. Freeman, Shangguo Su and V. Vajda. Carbon cycle perturbation expressed in terrestrial Permian-Triassic boundary sections in South China. *Global and Planetary Change*, 148: 272-285 (2017). DOI: 10.1016/j.gloplacha.2015.10.018
32. Y. Lei, S. Jiang, S. W. Wise Jr., **Y. Cui**, and Y. Wang. Environmental and biotic responses to early Eocene global warming in the tropical Atlantic. Marine Micropaleontology 129: 24-31 (2016), DOI: http://dx.doi.org/10.1016/j.marmicro.2016.11.001
33. J. Xue, Z. Deng, P. Huang, K. Huang, M.J. Benton, **Y. Cui**, D. Wang, J. Liu, B. Shen, J.F. Basinger, and S. Hao. Rhizomatous growth of basal vascular plants increased Early Devonian pedogenesis and landscape stability. *Proceedings of the National Academy of Sciences* 113: 9451–9456 (2016), DOI: 10.1073/pnas.1605051113
34. **Y. Cui** and B. Schubert. Quantifying uncertainty of past pCO_2 determined from changes in C_3 plant carbon isotope fractionation. *Geochimica et Cosmochimica Acta* 172: 127-138 (2016). DOI: 10.1016/j.gca.2015.09.032
35. A. Bercovici, **Y. Cui**, M. Forel, J. Yu, and V. Vajda. Terrestrial paleoenvironment characterization across the Permian-Triassic boundary in South China. *Journal of Asian Earth Sciences* 98: 225-246 (2015). DOI: 10.1016/j.jseaes.2014.11.016
36. **Y. Cui**, and L. R. Kump. Global warming and the end-Permian extinction event: proxy and modeling perspectives. *Earth-Science Reviews* 149: 5-22 (2015). DOI: 10.1016/j.earscirev.2014.04.007
37. **Y. Cui**, L. R. Kump, and A. Ridgwell. Initial assessment on the carbon emission rate and climatic consequences during the end-Permian mass extinction. *Palaeogeography Palaeoclimatology Palaeoecology*. 387: 176-184 (2013). DOI:10.1016/j.palaeo.2013.09.001
38. **Y. Cui**, L. R. Kump, A. Ridgwell, A. J. Charles, A. Diefendorf, C. K. Junium, K. H. Freeman, N. Urban, and I. C. Harding. Slow release of fossil carbon during the Paleocene-Eocene Thermal Maximum. *Nature Geoscience*, 4(7): 481-485 (2011). DOI:10.1038/ngeo1179
39. A. J. Charles, D. J. Condon, I. C. Harding, H. Pälike, J. E. A. Marshall, **Y. Cui**, L. R. Kump, and I. W. Croudace. Constraints on the numerical age of the Palaeocene/Eocene boundary. *Geochemistry, Geophysics, Geosystems*, (2011). DOI: 10.1029/2010GC003426

40. **Y. Cui**, J. B. Liu, Y. Ezaki. 2008. Fluctuations of stable carbon isotopes around the Permian-Triassic boundary in Huaying of Sichuan, South China: its characteristics and biogeochemical origin. *Acta Scientiarum Naturalium Universitatis Pekinensis*. No. 3, P. 95-105. (In Chinese with English abstract).

Book Chapter

41. **Y. Cui**, F. Zhang, J. Wang, S. Jiang, and S. Shen, 2020. Marine Anoxia and Ocean Acidification During the End-Permian Extinction, in: Ernst, R.E., Dickson, A.J., Bekker, A. (Eds.), Large Igneous Provinces, pp. 325-340. *DOI: https://doi.org/10.1002/9781119507444.ch14*
42. **Y. Cui**, L.R. Kump and A. Ridgwell. Spatial and temporal patterns of ocean acidification during the end-Permian mass extinction - an Earth system model evaluation, In: A. Schmidt, K.E. Fristad, and L.T. Elkins-Tanton, (Eds.), Volcanism and Global Environmental Change. Cambridge University Press, United Kingdom: 291-306 (2015). *DOI: https://doi.org/10.1007/9781107415683.020*

Correspondence

43. **Y. Cui**, L. R. Kump, A. Ridgwell, A. J. Charles, A. Diefendorf, C. K. Junium, K. H. Freeman, N. Urban, and I. C. Harding. Reply to 'Constraints on hyperthermals'. *Nature Geoscience*, 5(4): 231-232 (2012). DOI:10.1038/ngeo1424.

News and Views

44. **Y. Cui**. Climate swings in extinction. *Nature Geoscience* (2018) 11, 889.

RESEARCH FUNDING

Current

Externally funded projects

A new high-resolution stratigraphic record of the Paleocene-Eocene Thermal Maximum in the Eastern Tethys (PI: Ying Cui, NSF/GEO/EAR/P2C2, performance period: July 15, 2020 to July 30, 2021, award #2002370, award amount: $120,807)

Quantifying the carbon emission and sequestration rate after a large CO_2 pulse from the Siberian Traps volcanism (PI: Ying Cui, Co-PI: Noah Planavsky, NSF/GEO/EAR/Sedimentary Geology and Paleobiology, award # 2026877, performance period: August 1, 2020 to July 31, 2023, award amount: $321,205)

Probing causal links among volcanism, dust, and carbon burial in the Permian – A Harbinger of the future? (National Science Foundation, EAR/P2C2, PI:

Gerilyn Soreghan, co-PI: Ying Cui, award amount $62,230, total award amount $425,972, performance period: September 1, 2021 to August 31, 2024)

The Mesozoic–Palaeogene hyperthermal events: lessons for understanding Anthropogene global warming (International Geoscience Programme (IGCP); Project Leaders: Xiumian Hu, Ismail Yilmaz, David Kemp, Micha Ruhl, Santanu Banerjee, Ying Cui; Total $7,000)

U.S. Science Support Program Office associated with the International Ocean Discovery Program (USSSP-IODP) (Subaward: $20,786)

Sub-award for post-expedition activity for IODP Expedition 395 by U.S. Science Support Program Office associated with the International Ocean Discovery Program (USSSP-IODP) (Subaward: $8,973)

Internally funded projects

Faculty Research Mentoring Program ($3,000), Montclair State University, 2022-2023

Summer grant proposal development funding ($4,000), Montclair State University, 2022-2023

CSAM Faculty-Student Summer Research Program, Montclair State University ($1,000), Summer 2022

Mentor for two undergraduate students for Spring Faculty-Student Research program, 2022 ($2,000)

CSAM Faculty-Student Summer Research Program, Montclair State University ($1,000), Summer 2021

Summer grant proposal development funding ($4,000), Montclair State University, 2020-2021

Summer grant proposal development funding ($4,000), Montclair State University, 2019-2020

Student faculty scholarship funding ($2,000), Montclair State University, 2019

HONORS AND AWARDS

Best mentor award at the Casabona Future Scientist Program, Fall 2022 ($1500; First place won by undergraduate student Emily Cepin)

Best mentor award at the Casabona Future Scientist Program, Fall 2021 ($1500; First place won by undergraduate student Samantha Benjamin)

NSF CO_2 2nd workshop travel award, 2018

Dartmouth Postdoctoral Scholar Professional Development Award, 2018

NSF RCN CO_2 workshop training program award, 2018

NSF CO_2 1st workshop travel award, 2017

Obering Postdoctoral research funds, Department of Earth Sciences at Dartmouth College, 2016-2018

Department of Geosciences award for academic excellence, Penn State, 2014

Geological Society of America (GSA) Graduate Student Research Grant, 2013

IGCP572 travel funds, 2013

Hiroshi and Koya Ohmoto Graduate fellowship in Geoscience, 2012

Chesapeake Energy Scholarships in Geoscience, 2012

Geological Society of America (GSA) travel grant, 2012

IGCP591 travel funds, 2012

National Science Foundation USSP scholarship ($1,500), 2012

Biogeochemistry program award, Penn State ($20,000), 2011-2012

Sedimentary Geology and Paleobiology (SGP) travel grant ($1000), 2011

Paul D. Krynine Scholarship, Penn State ($400), 2010-2013

Graduate Scholarship, Peking University ($500), 2007-2008