Xingchen (Tony) Wang

Department of Earth and Environmental Sciences, Boston College
Chestnut Hill, MA 02467, USA, tel: (1)-609-937-2536, email: wangvt@bc.edu

EDUCATION

Ph.D. in Geosciences, Princeton University 2016
Thesis: "Nitrogen isotopes in scleractinian corals: Modern ocean studies and paleoceanographic applications"
Advisor: Daniel M. Sigman

B.S. in Geochemistry, **Nanjing University** 2010

APPOINTMENTS

Boston College, Department of Chemistry (Courtesy appointment) 2020 – Present
Assistant Professor

Boston College, Department of Earth and Environmental Sciences 2019 – Present
Assistant Professor

California Institute of Technology, Division of Geological and Planetary Sciences 2016 – 2019
Postdoctoral Scholar

Max Planck Institute for Chemistry, Department of Climate Geochemistry Summer 2016
Visiting Scholar

Princeton University, Department of Geosciences 2010 – 2016
Graduate Research Assistant & Postdoctoral Research Fellow

HONORS & AWARDS

Simons Foundation Postdoctoral Fellowship (SCOL)	2017 – 2019
Postdoctoral Fellowship in Geobiology, California Institute of Technology	2016 – 2017
Charlotte Elizabeth Procter Honorific Fellowship, Princeton University	2014 – 2015
Schlanger Fellowship, International Ocean Discovery Program	2014 – 2015
Princeton Energy and Climate Scholars, Princeton University	2013 – 2015
HSBC Scholarship, Nanjing University	2009 – 2010
People's Scholarship, Nanjing University	2006 – 2008

PEER-REVIEWED PUBLICATIONS

21. Zhang, R., **X. T. Wang**, H. A. Ren, J. Huang, M. Chen, D. M. Sigman, Dissolved organic nitrogen cycling in the South China Sea from an isotopic perspective. *Global Biogeochemical Cycles*, e2020GB006551 (2020).

20. Li, T., L. F. Robinson, T. Chen, **X. T. Wang**, A. Burke, J. W. B. Rae, A. Pegrum-Haram, T. D.J. Knowles, G. Li, H. C. Ng, M. G. Prokopenko, G. Rowland, A. Samperiz, J. Stewart, J. Southon, P. T. Spooner, Rapid shifts in physical and biological processes of the Southern Ocean during deglacial CO_2 events. *Science Advances*, 6 (42), eabb3807 (2020).

19. Neubauer, C., A. Cremiere, **X. T. Wang**, N. Thiagarajan, A. L. Sessions, J. F. Adkins, N. F. Dalleska, A. V. Turchyn, J. A. Clegg, A. Moradian, M. J. Sweredoski, S. D. Garbis, J. M. Eiler, Stable Isotope Analysis of Intact Oxyanions Using Electrospray Quadrupole-Orbitrap Mass Spectrometry. *Analytical Chemistry*, 92, 3077–3085 (2020).

18. Sims, Z. C., A. L. Cohen, V. H. Luu, **X. T. Wang**, D. M. Sigman, Uptake of groundwater nitrogen by a near shore coral reef community on Bermuda. *Coral Reefs*, 39, 215–228 (2019).

17. Duprey, N. N., **X. T. Wang**, T. Kim, J. Cybulski, H. B. Vonhof, P. J. Crutzen, G. H. Haug, D. M. Sigman, A. Martinez-Garcia, D. M. Baker, Megacity development and the demise of coastal coral communities: evidence from coral skeleton δ^{15}N records in the Pearl River Estuary. *Global Change Biology*, 26, 1338-1353 (2019).

16. Kast, E. R., D. A. Stolper, A. Auderset, J. A. Higgins, H. Ren, **X. T. Wang**, A. Martinez-Garcia, G. H. Haug, D. M. Sigman, Nitrogen isotope evidence for expanded ocean suboxia in the early Cenozoic. *Science*, 364, 386-389 (2019).

15. **Wang, X. T.**, A. L. Cohen, V. Luu, H. Ren, Z. Su, G. H. Haug, D. M. Sigman, Natural forcing of the North Atlantic nitrogen cycle in the Anthropocene. *Proceedings of the National Academy of Sciences*, 115, 10606-10611 (2018).

14. Studer, A. S., D. M. Sigman, A. Martinez-Garcia, L. M. Thole, E. Michel, S. L. Jaccard, J. Lippold, A. Mazaud, **X. T. Wang**, L. F. Robinson, J. F. Adkins, G. H. Haug, Increased nutrient supply to the Southern Ocean during the Holocene and its implications for the pre-industrial atmospheric CO_2 rise. *Nature Geoscience*, 11, 756–760 (2018).

13. Lueders-Dumont, J. A., **X. T. Wang**, O. P. Jensen, D. M. Sigman, B. B. Ward, Nitrogen isotopic analysis of otolith-bound organic matter in modern and fossil fish otoliths. *Geochimica et Cosmochimica Acta*, 224, 200-222 (2018).

12. Meng, X, L. Liu, **X. T. Wang**, W. Balsam, J. Chen, J. Ji, Mineralogical evidence of reduced East Asian summer monsoon rainfall on the Chinese loess plateau during early Pleistocene interglacials. *Earth and Planetary Science Letters*, 486, 61-69 (2018).

11. Tornabene, C., R. C. Martindale, **X. T. Wang**, M. F. Schaller, Detecting photosymbiosis in fossil Scleractinian corals. *Scientific Reports*, 7, 9465 (2017).

10. Ren, H., Y. Chen, **X. T. Wang**, G. T. F. Wong, A. L. Cohen, T. M. DeCarlo, M. A. Weigand, H. S. Meng, D. M. Sigman, 21st century rise in anthropogenic nitrogen deposition on a remote coral reef. *Science*, 356, 749-752 (2017).

9. Duprey, N., **X. T. Wang**, P. D. Thompson, J. Pleadwell, L. J. Raymundo, K. Kim, D. M. Sigman, D. M. Baker, Life and death of a sewage treatment plant recorded in a coral skeleton δ^{15}N record. *Marine Pollution Bulletin*, 120, 109-116 (2017).

8. **Wang, X. T.**, D. M. Sigman, M. G. Prokopenko, J. F. Adkins, L. F. Robinson, S. K. Hines, J. Chai, A. S. Studer, A. Martinez-Garcia, T. Chen, G. H. Haug, Deep-sea coral evidence for lower Southern Ocean surface nitrate concentrations during the last ice age. *Proceedings of the National Academy of Sciences*, 114, 3352–3357 (2017).

7. Frankowiak, K., **X. T. Wang**, D. M. Sigman, A. M. Gothmann, M. V. Kitahara, M. Mazur, A. Meibom, and J. Stolarski, Photosymbiosis and the expansion of shallow-water corals. *Science Advances*, 2, e1601122 (2016).

6. **Wang, X. T.**, D. M. Sigman, A. L. Cohen, D. J. Sinclair, R. M. Sherrell, K. M. Cobb, D. V. Erler, J. Stolarski, M. V. Kitahara, H. Ren, Influence of open ocean nitrogen supply on the skeletal δ^{15}N of modern shallow-water scleractinian corals. *Earth and Planetary Science Letters*, 441, 125-132 (2016).

5. Erler, D.V., **X. T. Wang**, D. M. Sigman, S. R. Scheffers, A. Martinez-Garcia, G. H. Haug, Nitrogen isotopic composition of organic matter from a 168 year-old coral skeleton: Implications for coastal nutrient cycling in the Great Barrier Reef Lagoon. *Earth and Planetary Science Letters*, 434, 161-170 (2016).

4. Li G., **X. T. Wang**, Z. Yang, A. J. West, C. Mao, J. Ji, Dam-triggered organic carbon sequestration makes the Changjiang (Yangtze) river basin (China) a significant carbon sink. *Journal of Geophysical Research-Biogeosciences*, 120, 39-53 (2015).

3. Erler, D.V., **X. T. Wang**, D. M. Sigman, S. R. Scheffers, B. O. Shepherd, Controls on the nitrogen isotopic composition of shallow water corals across a tropical reef flat transect. *Coral Reefs*, 34, 329-338 (2015).

2. **Wang, X. T.**, D. M. Sigman, A. L. Cohen, D. J. Sinclair, R. M. Sherrell, M. A. Weigand, D. V. Erler, H. Ren, Isotopic composition of skeleton-bound organic nitrogen in reef-building symbiotic corals: A new method and proxy evaluation at Bermuda. *Geochimica et Cosmochimica Acta*, 148, 179-190 (2015).

1. **Wang, X. T.**, M. G. Prokopenko, D. M. Sigman, J. F. Adkins, L. F. Robinson, H. Ren, S. Oleynik, B. Williams, G. H. Haug, Isotopic composition of carbonate-bound organic nitrogen in deep-sea scleractinian corals: A new window into past biogeochemical change. *Earth and Planetary Science Letters*, 400, 243-250 (2014).

OTHER PUBLICATIONS

1. Contributing author, Fusion energy via magnetic confinement. *Energy Technology Distillates*, Andlinger Center For Energy and the Environment, Princeton University (2016).

SELECTED NEWS COVERAGE

”Deep-sea corals reveal secrets of rapid carbon dioxide increase as the last ice age ended”, *Boston College News*, November, 2020

“Princeton geoscientists find new fallout from ‘the collision that changed the world’”, *Princeton University News*, April, 2019

“Scientists studied skeleton of 130-year-old brain coral to learn about nitrogen pollution”, *MSN.com*, October, 2018

“130-year-old brain coral reveals encouraging news for open ocean”, *Princeton University News*, October, 2018

“Carbon ‘leak’ may have warmed the planet for 11,000 years, encouraging human civilization”, *Princeton University News*, July, 2018

“Deep-sea corals reveal why atmospheric carbon was lower during the ice ages”, *Princeton Research*, March, 2017

“Cold Climates and Ocean Carbon Sequestration”, *Caltech News*, March, 2017

“Global warming could be breaking up this 200 million year old relationship”, *Washington Post*, November, 2016

“Can an Ancient Friendship Help Save Corals?”, *Discover Magazine*, November, 2016

“When corals met algae: Symbiotic relationship crucial to reef survival dates to the Triassic”, *Princeton University News*, November, 2016

RESEARCH GRANTS

VPR Capital Equipment Fund (Boston College), “Acquisition of an Elemental Analyzer for the Center for Isotope Geochemistry”, 2019-2020, $64,986. Role: Principal Investigator.

Simons Foundation, "N isotopes in stromatolites: Linking the N cycle to the origins of life", 2017-2019, $255,000. Role: Principal Investigator.

National Science Foundation, "Collaborative Research: Identifying the Role of Basin-scale Climate Variability in the Decline of Atlantic Corals", 2015-2018, $264,801. Role: co-writer of the proposal as a graduate student.

U.S. Science Support Program, "Exploring the late Pleistocene marine nitrogen cycle in the South Pacific using nitrogen isotopes of fossil corals from Tahiti", 2014-2015, $30,000. Role: Principal Investigator.

INVITED SEMINARS

Department of Chemistry, Boston College	Sep 2020
Department of Oceanography, Texas A&M University	Oct 2019
Department of Geology and Geophysics, Woods Hole Oceanographic Institution	Apr 2019
Department of Earth and Planetary Sciences, Harvard University	Mar 2019
Department of Earth and Environmental Sciences, Boston College	Mar 2019
Department of Earth Sciences, University of Minnesota	Feb 2019
College of Marine Science, University of South Florida	Oct 2018
Scripps Institute of Oceanography, University of California, San Diego	Apr 2018
Department of Ocean Science, Hong Kong University of Science and Technology	Mar 2018
Division of Geological and Planetary Sciences, California Institute of Technology	Sep 2017
School of Earth and Space Sciences, University of Science and Technology of China	May 2017
Department of Earth Sciences, University of Southern California	Feb 2017
MARUM, University of Bremen	Aug 2016
School of Earth Sciences and Engineering, Nanjing University	Apr 2015

TEACHING EXPERIENCE

Boston College, Department of Earth and Environmental Sciences

EESC 3320: Introduction to Geochemistry (Spring 2021), Instructor

EESC 5230: Stable Isotope Biogeochemistry (Spring 2021), Instructor

EESC 5563: Paleoceanography and Paleoclimatology (Fall 2020), Instructor

California Institute of Technology, Division of Geological and Planetary Sciences

GE-140: Stable Isotope Biogeochemistry (Spring 2018), Guest Lecturer

International Geobiology Training Course

Geochemistry section (Summer 2017, 2018), Teaching Assistant

Princeton University, Department of Geosciences

GEO 102: Climate: Past, Present, and Future (Fall 2013), Teaching Assistant

MENTORING EXPERIENCE

Boston College, Department of Earth and Environmental Sciences

Cindy Wang (2019-present), Research Associate

Christine Wu (2019-2020), Postdoctoral Research Associate

Danielle LeBlanc (2020-present), PhD student co-advised with Dr. Jeremy Shakun

Fengyao Li (2020-present), PhD student

Kameko Landry (2020-present), MS student

Alexis Burns (2020-present), Senior thesis

Carlos Tramonte (2020-present), Senior thesis co-advised with Dr. Sarah Davies (BU)

California Institute of Technology, Division of Geological and Planetary Sciences

Ella Hughes (Summer 2018), undergraduate research, now graduate student at Harvard University

Princeton University, Department of Geosciences

Vivian Yao (2015-2016), undergraduate research, now graduate student at UC Berkeley

Jack Zhou (Summer 2014), undergraduate research, now data scientist at Two Sigma

SERVICE

Committee

VPR Capital Equipment Fund review committee (2020), Boston College

Graduate Committee (2020-present), Department of Earth and Environmental Sciences, Boston College

Steering Committee (2020-present), Center for Isotope Geochemistry, Boston College

Search Committee (2020), Director of Center for Isotope Geochemistry, Boston College

Reviewer

National Science Foundation, Royal Society (UK), Environmental Science & Technology, Geochimica et Cosmochimica Acta, Geology, Geophysical Research Letters, Global Biogeochemical Cycles, Limnology & Oceanography, Nature Climate Change, Nature Communications, Nature Geosciences, Paleoceanography & Paleoclimatology, Proceedings of the National Academy of Sciences, Science Advances, The ISME Journal, etc.

Session Convener

"Development and application of coral proxies for ocean change", AGU Fall Meeting, San Francisco, CA, USA, 2019

"Nitrogen cycling in the ocean: From genes to ecosystems and from the past to the future", Xiamen Symposium on Marine Environmental Sciences, Xiamen, China, 2019

"Development and application of coral proxies for ocean change", AGU Fall Meeting, New Orleans, LA, USA, 2017

"Nutrient biogeochemistry in the ocean", Goldschmidt Conference, Paris, France, 2017

"Nutrient cycling in past oceans", AGU Fall Meeting, San Francisco, CA, USA, 2016

SELECTED CONFERENCE PRESENTATIONS

(* denotes student or postdoc advisee)

***Wang, Y.**, Nitrogen isotopic composition of modern and Plio-Pleistocene fossil shells from the two sides of the Isthmus of Panama, AGU Fall Meeting (virtual), Dec 2020.

Wang, X. T., A major change in the ocean's nutrient cycling in the late Miocene, AGU Fall Meeting (virtual), Dec 2020.

***Wang, Y.**, A seasonally resolved coral nitrogen isotope record from the Florida Keys: Implications for the impact of anthropogenic nitrogen on the Gulf of Mexico, Goldschmidt Conference (virtual), Jun 2020.

Wang, X. T., Nitrogen isotopes of ancient proteins: New analytical capabilities and potential applications in paleobiology, North American Paleontological Convention, Riverside, CA, USA, Jun 2019.

***Hughes, E. R.**, Sulfur isotope composition of organic matter from the Monterey formation: Implications for California margin redox conditions in the late Miocene, AGU Fall Meeting, Washington, D.C., USA, Dec 2018.

Wang, X. T., A. L. Cohen, V. Luu, H. Ren, Z. Su, G. H. Haug, D. M. Sigman, Natural forcing of the North Atlantic nitrogen cycle in the Anthropocene, AGU Fall Meeting, Washington, D.C., USA, Dec 2018.

Wang, X. T., D. M. Sigman, M. G. Prokopenko, J. F. Adkins, L. F. Robinson, S. K. Hines, J. Chai, A. S. Studer, A. Martinez-Garcia, G. H. Haug, Deep-sea coral evidence for lower Southern Ocean surface nitrate concentrations during the last ice age, Ocean Science Meeting, Portland, OR, USA, Feb 2018.

Wang, X. T., D. M. Sigman, A. L. Cohen, Assessing the impact of anthropogenic N on the North Atlantic with Bermuda corals, Xiamen Symposium on Marine Environmental Sciences, Xiamen, China, Jan 2017.

Wang, X. T., D. M. Sigman, A. L. Cohen, Assessing the impact of anthropogenic N on the North Atlantic with Bermuda corals, Goldschmidt Conference, Yokohama, Japan, Jun 2016.

Wang, X. T., D. M. Sigman, A. L. Cohen, D. J. Sinclair, R. M. Sherrell, K. M. Cobb, D. V. Erler, J. Stolarski, M. Kitahara, W. G. Thompson, H. Ren, Nitrogen isotopes in coral skeleton-bound organic matter: Influences in the modern ocean and application to fossil Tahiti corals from the last deglaciation, International Coral Reef Symposium, Honolulu, HI, USA, Jun 2016.

Wang, X. T., D. M. Sigman, A. L. Cohen, W. G. Thompson, The nitrogen isotopes of fossil Tahiti corals from the last deglaciation, AGU Fall Meeting, San Francisco, CA, USA, Dec 2015.

Wang, X. T., D. M. Sigman, A. L. Cohen, D. J. Sinclair, R. M. Sherrell, M. A. Weigand, K. M. Cobb, D. V. Erler, P. A. Rafter, H. Ren, Nitrogen isotopes of coral skeleton-bound organic matter: Influences in the modern ocean. Ocean Sciences Meeting, Honolulu, HI, USA, Feb 2014.

Wang, X. T., A. L. Cohen, D. M. Sigman, Nitrogen isotopes of coral skeleton-bound organic matter: Proxy evaluation at Bermuda. Goldschmidt Conference, Florence, Italy, Aug 2013.

PROFESSIONAL AFFILIATIONS

Geochemical Society

American Geophysical Union

Geological Society of America

Association for the Sciences of Limnology and Oceanography