

Xingchen (Tony) Wang

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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
PROFESSIONAL EXPERIENCE	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 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	20. 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. <i>Analytical Chemistry</i> , 92, 3077–3085 (2020). 19. 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. <i>Coral Reefs</i> , 39, 215–228 (2020). 18. 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 $\delta^{15}\text{N}$ records in the Pearl River Estuary. <i>Global Change Biology</i> , 26, 1338-1353 (2019). 17. 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. <i>Science</i> , 364, 386-389 (2019).

16. **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).
15. 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 CO₂ rise. *Nature Geoscience*, 11, 756–760 (2018).
14. 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).
13. 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).
12. Tornabene, C., R. C. Martindale, **X. T. Wang**, M. F. Schaller, Detecting photosymbiosis in fossil Scleractinian corals. *Scientific Reports*, 7, 9465 (2017).
11. 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).
10. 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 $\delta^{15}\text{N}$ record. *Marine Pollution Bulletin*, 120, 109-116 (2017).
9. **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).
8. 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).
7. **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 $\delta^{15}\text{N}$ of modern shallow-water scleractinian corals. *Earth and Planetary Science Letters*, 441, 125-132 (2016).
6. 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).
5. 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).

4. 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).

3. **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).

2. **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: An energy technology distillate. Andlinger Center For Energy and the Environment, Princeton University (2016).

**SELECTED
CONFERENCE
PRESENTATIONS**

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 (Oral presentation).

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 (Oral presentation).

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, Oregon, USA, Feb 2018 (Oral presentation).

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 (Oral presentation).

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 (Oral presentation).

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, Hawaii, USA, Jun 2016 (Oral presentation).

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, USA, Dec 2015 (Poster presentation).

Wang, X. T., D. M. Sigman, A. L. Cohen, The North Atlantic N cycle since 1780 AD: Evidence from Bermuda corals, Gordon Research Conference-Chemical Oceanography, Holderness School, NH, USA, May 2015 (Poster presentation).

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, Hawaii, USA, Feb 2014 (Oral presentation).

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 (Oral presentation).

**SELECTED
NEWS
COVERAGE**

"Princeton geoscientists find new fallout from 'the collision that changed the world'", [Princeton University News](#), April 25, 2019

"Scientists studied skeleton of 130-year-old brain coral to learn about nitrogen pollution", [MSN.com](#), October 2, 2018

"130-year-old brain coral reveals encouraging news for open ocean", [Princeton University News](#), October 1, 2018

"Carbon 'leak' may have warmed the planet for 11,000 years, encouraging human civilization", [Princeton University News](#), July 30, 2018

"Deep-sea corals reveal why atmospheric carbon was lower during the ice ages", [Princeton Research](#), March 16, 2017

"Cold Climates and Ocean Carbon Sequestration", [Caltech News](#), March 14, 2017

"Global warming could be breaking up this 200 million year old relationship", [Washington Post](#), November 2, 2016

"Can an Ancient Friendship Help Save Corals?", [Discover Magazine](#), November 2, 2016

"When corals met algae: Symbiotic relationship crucial to reef survival dates to the Triassic", [Princeton University News](#), November 2, 2016

**INVITED
TALKS**

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**

Division of Geological and Planetary Sciences, Caltech Spring 2018

Guest lecturer on N isotopes, "GE-140: Stable Isotope Biogeochemistry"

International Geobiology Course
Teaching Assistant

Summer 2017 & 2018

Department of Geosciences, Princeton University
Assistant in Instruction, “GEO 102: Climate: Past, Present, and Future”

Fall 2013

**FUNDED
PROPOSALS**

Simons Foundation, “N isotopes in stromatolites: Linking the N cycle to the origins of life”, 2017-2020, \$255,000 (**Role: Principal Investigator**).

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**).

SERVICE

Reviewer

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

Session Convener

“Development and application of coral proxies for ocean change”, AGU Fall Meeting, San Francisco, 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, USA, 2017

“Nutrient biogeochemistry in the ocean”, Goldschmidt Conference, Paris, France, 2017

“Nutrient cycling in past oceans”, AGU Fall Meeting, San Francisco, USA, 2016

**PROFESSIONAL
AFFILIATIONS**

Geochemical Society

American Geophysical Union

Geological Society of America

Association for the Sciences of Limnology and Oceanography