

Hussein Sayani, PhD

hsayani@bu.edu | www.hsayani.com

ADDRESS

Earth and Environment
Boston University
685 Commonwealth Avenue
Boston, MA 02215

PROFESSIONAL APPOINTMENTS

- 2017 – Postdoctoral Research Associate, Boston University
Advisor: Dr. Diane Thompson
- 2013 – 2017 Graduate Research Assistant, Georgia Tech
Advisor: Dr. Kim Cobb
- 2015 – 2016 Graduate Teaching Assistant, Georgia Tech
EAS 3110: Energy, the Environment & Society (2 sections)
- 2013 – 2014 EAS 2600: Earth Processes Lab (4 sections)
- 2010 – 2013 NSF Graduate Research Fellow, Georgia Tech
- 2009 – 2010 Lab Technician, Georgia Tech
- 2007 – 2010 Undergraduate Research Assistant
Advisor: Dr. Kim Cobb

EDUCATION

- 2017 Ph.D. in Paleoclimatology, Georgia Institute of Technology
- 2009 B.S. in Earth and Atmospheric Sciences, Georgia Institute of Technology

AWARDS & FELLOWSHIPS

- 2016 – 2017 Georgia Tech Diversity & Inclusion Fellows Program
- 2010 – 2013 NSF Graduate Research Fellowship
- 2011 Chair's Special Service Award
Georgia Tech, School of Earth and Atmospheric Science
- 2009 Outstanding Undergraduate Researcher
Georgia Tech, College of Sciences
- 2008 Georgia Tech President's Undergraduate Research Award
- 2008 S. Rutt Bridges Undergraduate Research Initiative Award
- 2002 – 2007 Georgia HOPE Scholarship

GRANTS

- 2017 co-author, *NSF-OCE-P2C2 #1702130: Reconstructing Pacific Trade Wind Variability: Extending and Replicating a Promising New Coral Proxy*, awarded to Diane Thompson

PEER-REVIEWED PUBLICATIONS

Submitted and in preparation

(underline – advised/mentored student)

11. **Sayani, H.R.**, K.M. Cobb, A. Khare, C.M. Stone, P.R. Grothe, T. Chen, H. Cheng, R.L. Edwards. *Central tropical Pacific climate variability during the Little Ice Age* (in prep for Nature)
10. **Sayani, H.R.**, K.M. Cobb, K.L. Delong, N.T. Hitt, and E.R.M. Druffel. *Intercolony $\delta^{18}O$ and Sr/Ca variability among Porites corals from Palmyra Atoll* (in prep for G-Cubed)
9. **Sayani, H.R.**, K.M. Cobb, A.L. Cohen, B. Monteleone, and H. Crespo. *Reliable coral Sr/Ca estimates using SIMS: challenges and implications* (in prep for GCA)
8. Hitt, N.T., **Sayani, H.R.**, K.M. Cobb, P.R. Grothe, A.R. Atwood, S.A. Ellis, D.M. Thompson, J.L. Conroy, Y. Lu, M. Pythoud, H. Cheng, and R.L. Edwards. *Evaluating 20th century central tropical Pacific SST trends using young fossil corals* (in prep for GRL)
7. Grothe, P.R., K.M. Cobb, G. Liguori, E. Di Lorenzo, A. Capotondi, Y. Lu, H. Cheng, R.L. Edwards, J.R. Southon, G.M. Santos, D.M. Deocampo, J. Lynch-Stieglitz, T. Chen, **H.R. Sayani**, K.J. Townsend, M.M. Hagos, G. O'Connor, D.M. Thompson, L.T. Toth, J.L. Conroy, and A.L. Moore. *Central Pacific El Niño Southern Oscillation stronger in last decades than pre-industrial period* (submitted to Science)

Published

(underline – advised/mentored student)

6. Carilli, J. E., A.C. Hartmann, S.F. Heron, J.M. Pandolfi, K.M. Cobb, **H.R. Sayani**, R.B. Dunbar, and S.A. Sandin (2017), *Porites coral response to an oceanographic and human impact gradient in the Line Islands*, Limnology and Oceanography. doi: 10.1002/lno.10670
5. Grothe, P.R., K.M. Cobb, S.L. Bush, H. Cheng, G.M. Santos, J.R. Southon, R.L. Edwards, D.M. Deocampo, and **H.R. Sayani** (2016), *A comparison of rapid screening ^{14}C and U-Th dates from Line Island fossil corals: implications for paleoclimate reconstruction*, G-Cubed. doi: 10.1002/2015GC005893
4. Toth, L. T., R.B. Aronson, K.M. Cobb, H. Cheng, R.L. Edwards, P.R. Grothe, and **H.R. Sayani** (2015), *Climatic and biotic thresholds of coral-reef shutdown*, Nature Climate Change. doi: 10.1038/nclimate2541
3. Cobb, K.M., N. Westphal, **H.R. Sayani**, J.T. Watson, E. Di Lorenzo, H. Cheng, R.L. Edwards, and C.D. Charles (2013), *Highly variable El Niño-Southern Oscillation throughout the Holocene*, Science. doi: 10.1126/science.1228246
2. **Sayani, H.R.**, K.M. Cobb, A.L. Cohen, W.C. Elliott, I.S. Nurhati, R.B. Dunbar, K.A. Rose, and L.K. Zaunbrecher (2011), *Effects of diagenesis on paleoclimate reconstructions from modern and young fossil corals*, Geochimica et Cosmochimica Acta. doi: 10.1016/J.Gca.2011.08.026
1. Zaunbrecher, L.K., K.M. Cobb, J.W. Beck, C.D. Charles, E.R.M. Druffel, R.G. Fairbanks, S. Griffin, and **H.R. Sayani** (2010), *Coral records of central tropical Pacific radiocarbon variability during the last millennium*, Paleoceanography. doi: 10.1029/2009pa001788

PRESENTATIONS

Invited Talks

3. Intercolony $\delta^{18}\text{O}$ and Sr/Ca variability and the fidelity of coral-based climate records, *Tropical Coral Archives Workshop*, Bremen, Germany, September 2017
2. Fossil coral-based reconstructions of past climate variability, *Earth and Environment*, Boston University, Boston, MA, January 2016
1. Coral records of ENSO, *Life University*, Marietta, GA, August 2014

Contributed Presentations

(* presenting author, underline – mentored/advised student)

21. **Sayani, H.R.***, D.M. Thompson, J.E. Carilli, T. Ireland, K.M. Cobb, A.R. Atwood, P.R. Grothe, S.J. Miller, N.T. Hitt, G. O'Connor. Constraining 20th century Pacific trade-wind variability using coral Mn/Ca. *GeoBremen2017*, Bremen, Germany, September 2017
20. Atwood, A.R.* , K.M. Cobb, P.R. Grothe, **H.R. Sayani**, J.R. Southon, R.L. Edwards, D.M. Deocampo, N.T. Hitt and J. Chiang. A Coral Ensemble Approach to Reconstructing Central Pacific Climate Change During the mid-Holocene. *GeoBremen2017*, Bremen, Germany, September 2017
19. Cobb, K.M.* , N. Westphal, C. D. Charles, **H.R. Sayani**, R.L. Edwards, H. Cheng, P. R. Grothe, T. Chen, N.T. Hitt, G. O'Connor, and A.R. Atwood. Tropical Pacific climate during the Medieval Climate Anomaly: progress and pitfalls. Abstract PP54A-07 at *AGU Fall Meeting*, San Francisco, CA, December 2016
18. **Sayani, H.R.***, K.M. Cobb, G. O'Connor, A. Khare, A.R. Atwood, P.R. Grothe, T.Chen, M.M. Hagos, N.T. Hitt, D.M. Deocampo, Y. Lu, H. Cheng, and R.L. Edwards. Coral Ensemble Estimates of Central Pacific Mean Climate During the Little Ice Age. Abstract PP51D-2329 at *AGU Fall Meeting*, San Francisco, CA, December 2016
17. Atwood, A.R.* , K.M. Cobb, P.R. Grothe, **H.R. Sayani**, J.R. Southon, R.L. Edwards, D.M. Deocampo, K.J. Townsend, M.M. Hagos, and J. Chiang. An Coral Ensemble Approach to Reconstructing Central Pacific Climate Change During the Holocene. Abstract PP43D-04 at *AGU Fall Meeting*, San Francisco, CA, December 2016
16. Hitt, N.T.*, K.M. Cobb, **H.R. Sayani**, P.R. Grothe, A.R. Atwood, G. O'Connor, T. Chen, M.M. Hagos, D.M. Deocampo, R.L. Edwards, H. Cheng, Y. Lu, D.M. Thompson. An ensemble approach to reconstructing 20th century climate in data-sparse regions of the tropical Pacific using young fossil corals. Abstract PP43D-03 at *AGU Fall Meeting*, San Francisco, CA, December 2016
15. O'Connor, G.*, K.M. Cobb, **H.R. Sayani**, P.R. Grothe, A.R. Atwood, S. Stevenson, N.T. Hitt, and J. Lynch-Stieglitz. The 2015/16 El Niño Event as Recorded in Central Tropical Pacific Corals: Temperature, Hydrology, and Ocean Circulation Influences. Abstract A41L-04 at *AGU Fall Meeting*, San Francisco, CA, December 2016.
14. Grothe, P.R.* , K.M. Cobb, G. Liguori, E. Di Lorenzo, A. Capotondi, H. Cheng, G.M. Santos, J.R. Southon, D.M. Deocampo, T. Chen, **H.R. Sayani**, K.J. Townsend, L.T. Toth, M.M. Hagos, G. O'Connor, D.M. Thompson, and Y.Lu. Robust evidence for forced changes in ENSO: from the

mid-Holocene to the 21st century. Abstract A42E-03 at *AGU Fall Meeting*, San Francisco, CA, December 2016

13. **Sayani, H.R.***, K.M. Cobb, A. Khare, C.M. Stone, P.R. Grothe, T. Chen, Y. Lu, H. Cheng, and R.L. Edwards. Coral-based estimates of tropical Pacific climate during the Little Ice Age: intercolony variability and the need for replication. Abstract PC54A-2239 at *Ocean Sciences Meeting*, New Orleans, LA, February 2016.
12. Hitt, N.T.*, K.M. Cobb, **H.R. Sayani**, P.R. Grothe, T. Chen, M.M. Hagos, D.M. Deocampo, R.L. Edwards, H. Cheng, Y. Lu, and K.J. Townsend. An ensemble approach to reconstructing mid-20th century climate using young fossil corals: pitfalls and opportunities. Abstract PC51A-06 at *Ocean Sciences Meeting*, New Orleans, LA, February 2016.
11. **Sayani, H.R.***, K.M. Cobb, A. Khare, C.M. Stone, P.R. Grothe, T. Chen, H. Cheng, Y. Lu, R. L. Edwards. Central Tropical Pacific SST and Salinity Variability over the Little Ice Age. Abstract PP13D-02 at *AGU Fall Meeting*, San Francisco, CA, December 2015
10. Miller, S.J.*, K.M. Cobb, P.R. Grothe, **H.R. Sayani**, T. Chen, J. Lynch-Stieglitz, K.J. Townsend, R.L. Edwards, H. Cheng, D.M. Deocampo. Favia Corals: A New Paleoclimate Archive. *AGU Fall Meeting*, San Francisco, CA, December 2015
9. Morales-Collazo, J. A., W.R. Ramirez-Martinez, A. Winter, H. Santos Mercado, K.M. Cobb, **H.R. Sayani**, P.R. Grothe, R.L. Edwards, A. Min, and H. Cheng. Reconstructing sea surface temperatures in the Caribbean during the early-mid Holocene from a reef exposure in Cañada Honda, Enriquillo Valley, Dominican Republic. Paper No. 40-25 at *GSA Annual Meeting*, Baltimore, MD, November 2015
8. **Sayani, H.R.***, K.M. Cobb, A.L. Cohen, and B.D. Monteleone. Reliable coral Sr/Ca estimates using SIMS: challenges and implications. *HiRes Paleoclimate Proxies Workshop*, Madison, WI, June 2015
7. Morales-Collazo, J.A., W.R. Ramirez-Martinez, A. Winter, H. Santos Mercado, K.M. Cobb, **H.R. Sayani**, P.R. Grothe, M. Gonzalez-Tavarez. Developing a two thousand year record of climate variability from a reef exposure in Canada Honda, Enriquillo Lake, Dominican Republic, *29th Annual Symposium of Caribbean Geology*, Mayaguez, Puerto Rico, March 2014
6. **Sayani, H.R.***, K.M. Cobb, A.L. Cohen, E.R.M. Druffel, and B.D. Monteleone. Intercolony Sr/Ca variability in Palmyra Island corals: Implications for paleo-SST reconstructions. Abstract PP23D-06 at *AGU Fall Meeting*, San Francisco, CA, December 2013
5. **Sayani, H.R.***, K.M. Cobb, A.L. Cohen, B.D. Monteleone. Extracting robust Sr/Ca estimates from coral using SIMS. *HiRes Paleoclimate Proxies Workshop*, Madison, WI, June 2013
4. Cobb, K.M.*, N. Westphal, **H.R. Sayani**, E. Di Lorenzo, H. Cheng, R.L. Edwards, and C.D. Charles. Testing late 20th century El Nino-Southern Oscillation variability against new coral-based estimates of natural variability. Abstract OS52B-03 at *AGU Fall Meeting*, San Francisco, CA, December 2012
3. Wiggins, E. B.*, **H.R. Sayani**, and K.M. Cobb. The Effects of Freshwater Dissolution on Coral Geochemistry and Morphology. Abstract PP33A-2089 at *AGU Fall Meeting*, San Francisco, CA, December 2012

2. **Sayani, H.R.***, K.M. Cobb, A.L. Cohen, W.C. Elliott, I.S. Nurhati, R.B. Dunbar, K.A. Rose, and L.K. Zaunbrecher. Effects of diagenesis on paleoclimate reconstructions from modern and young fossil corals. *Goldschmidt Conference*, Knoxville, TN, June 2010
1. **Sayani, H.R.***, K.M. Cobb, A.L. Cohen, W.C. Elliott, I.S. Nurhati, R.B. Dunbar, K.A. Rose, and L.K. Zaunbrecher. Effects of diagenesis on paleoclimate reconstructions from modern and young fossil corals. *AGU Fall Meeting*, San Francisco, CA, December 2009

TEACHING

Spring 2015 & 2016 Energy, Environment & Society, Teaching Assistant and Guest Lecturer
 Fall 2013 & 2014 Earth Processes Labs, Teaching Assistant and Lab Instructor

SERVICE

Mentoring Students

2017 – Aaron Jones
 2017 – Megan Gottschalk
 2015 – 2017 Nicholas T. Hitt, *PURA Awardee, AGU and OSM Fall Meeting Presenter*
 2016 – 2017 Gemma O'Connor, *PURA Awardee, AGU Fall Meeting Presenter*
 2016 – 2017 Melat Hagos, *PURA Awardee*
 2015 – 2016 Kayla Townsend, *PURA Awardee*
 2014 – 2016 Shellby J. Miller, *PURA Awardee, AGU Fall Meeting Presenter*
 2014 – 2015 Colin M. Stone, *PURA Awardee*
 2011 – 2013 Elizabeth Wiggins, *PURA Awardee, AGU Fall Meeting Presenter*

Synergistic Activities

2017 – Co-organizer for BU AGREED - Allies for Gender/Sexuality, Racial & Ethnic Equality & Diversity
 2017 – BU Biogeosciences Workshop Planning Committee
 2017 – Contributor to the PAGES coralHydro2k project
 2015 – Contributor to the PAGES ISO2K project
 2016 - 2017 Co-founder of Queering STEM, a professional development and peer-mentoring group for LGBTQ+ graduate students and postdocs at Georgia Tech
 2016 – 2017 Co-organizer for Culture Swap Project
 2016 – 2017 Fellow for the Georgia Tech Diversity and Inclusion Program
 2011 – 2016 Reviewer for the Georgia Tech President's Undergraduate Research Award,
 2013 Co-organizer for "Chasing Ice" screening and panel discussion
 2011 – 2013 Co-organizer for the EAS Graduate Student Symposium
 2010 – 2011 Chair of Graduate Student Symposium Committee

Outreach

- Oct 2016 Presentation: Rocks – Where do they come from?
Springdale Park Elementary STEAM Night, Atlanta GA
- Oct 2015 Presentation: If Rocks Could Talk
Springdale Park Elementary STEAM Night, Atlanta GA
- Oct 2012 Guest Lecturer, Oceanography
Mount Arabia High School, Atlanta, GA
- Nov 2013 Guest Lecturer, Oceanography
Mount Arabia High School, Atlanta, GA
- Nov 2010 Presentation: Corals and Climate Change
Earth Club at Grady High School, Atlanta, GA
- Sept 2009 Guest Lecturer, Climate Change
Cross Keys High School, Atlanta, GA
- 2012 Tutor at Atlanta Union Mission
(women and children's shelter)
- 2009 – 2010 Organizer for the Atlanta Science Café

FIELD EXPERIENCE

- 2012 Christmas Island, Republic of Kiribati, 2012: mapped fossil coral rubble fields around the island, collected and archived fossil corals, installed weather station and rain water collection devices, collected seawater samples

PROFESSIONAL TRAINING & WORKSHOPS

- 2015 High-Res Proxies of Paleoclimate Workshop
University of Wisconsin - Madison
- 2015 U/Pb Geochronology using SIMS Short Course
Woods Hole Oceanographic Institute
- 2013 High-Res Proxies of Paleoclimate Workshop
University of Wisconsin - Madison

ANALYTICAL/LAB EXPERIENCE

Stable isotope ratio mass spectrometry (IRMS): Delta V plus, MAT253, Kiel Carbonate IV

Trace metal analyses: ICP-OES (Horiba Jobin Yvon Ultima 2C, Ultima Expert), ICP-MS (Neptune Plus), SIMS (Cameca IMS1280, Cameca 3f)

Imaging and petrology: SEM, XRD, thin section preparation

PROFESSIONAL AFFILIATIONS

American Geophysical Union (AGU), PAGES – Past Global Changes, Geochemical Society (GS), oSTEM, NOGLSTP