

CURRICULUM VITAE

KONRAD ALLEN HUGHEN

Senior Scientist

Marine Chemistry and Geochemistry

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EDUCATION:

Ph.D.: University of Colorado, Boulder - Geological Sciences, 1997

B.A.: University of California, Santa Cruz - Biology and Geology, double major, 1991

PROFESSIONAL EXPERIENCE:

Senior Scientist, Marine Chemistry and Geochemistry, WHOI, 2014 to present

Associate Scientist with tenure, Marine Chemistry and Geochemistry, WHOI, 2007-2014

Associate Scientist, Marine Chemistry and Geochemistry, WHOI, 2004-2007

Assistant Scientist, Marine Chemistry and Geochemistry, WHOI, 2000-2004

Research Scientist, INSTAAR, CU Boulder, 1999-2000

Postdoctoral Fellow, Harvard University, 1997-1999

Research Assistant, INSTAAR, CU Boulder, 1991-1997

Teaching Assistant, Geological Sciences, CU Boulder, 1991-1992

AWARDS AND HONORS:

WHOI Doherty Chair in Education, 2014-2015

NOAA Climate and Global Change Postdoctoral Fellowship, 1997-2000

DOE Alexander Hollaender Distinguished Postdoctoral Fellowship, 1997 (declined)

NASA Earth Systems Science Graduate Research Fellowship, 1995-1997

Univ. of Colorado Doctoral Fellowship, 1991

RESEARCH INTERESTS:

My research interests involve the development and application of inorganic and organic geochemical proxies for studies of environmental and climatic change. I use high-resolution, multiple-proxy records in order to understand the mechanisms controlling abrupt climate change and the response of ecosystems to rapid environmental shifts.

PROFESSIONAL ACTIVITIES:

WHOI (Non Education Related):

Oceans and Climate Change Institute Advisory Committee (2009-present)

Fellow, Oceans and Climate Change Institute (2001-2003)

Chair, MCG Safety Committee (2010-present)

MCG Safety Committee (2004-2010)

WHOI Institution Safety Committee (2010-present)

Chair, Mentoring Committee for MCG Associate Scientist Marco Coolen (2006-2014)

Mentoring Committee for MCG Assistant Scientist Amy Apprill (2011-present)

Mentoring Committee for MCG Assistant Scientist Laura Robinson (2006-2010)

MCG Postdoctoral Mentorship Committee (2007-present)

WHOI Staff Committee (2009-2011)

Benefits Task Force Committee (2005)

Convener, IntCal04 Radiocarbon Calibration Working Group, WHOI (2003)

Science Partner in Trustee-Scientist Partnership Program (2003-2014)

Interview, WHOI Oceanus Magazine (2010, 2013)

Presentations to Science Journalism Fellows (2002, 2007, 2010, 2011, 2012), WHOI Associates (2002, 2005, 2007, 2009), U.S. Congressman Wayne Gilchrest (2002), WHOI Trustees (2007, 2009, 2011)

Outside WHOI (Other than attendance at Meetings):

Editorial Board, *Encyclopedia of Quaternary Sciences*, Sediment Dating Methods Section (2007, 2012)
NOAA Climate and Global Change Postdoctoral Selection Committee (2011-2014)
Scientific Steering Committee, SEARCH (Study of Environmental Arctic Change) (2002-2010)
Co-chair, Marine Radiocarbon Calibration Working Group (2002-2008)
Member, IntCal Radiocarbon Calibration Working Group (2002-present)
Councilor, American Quaternary Association (2002-2008)
Chair, PARCS (Paleoenvironmental Arctic Science) High-Resolution Working Group (2002-2010)
Convener, Session on Marine ^{14}C , 19th Int'l Radiocarbon Conf., Oxford, UK, Apr. 2-6 (2006)
Organizing Committee, 19th International Radiocarbon Conference (Apr 2006)
Co-convener, Session on Organic Geochemical Response to Abrupt Climate Change, AGU Ocean Sciences, Honolulu HA, Feb. 20-24 (2006)
Panel Member, 2nd NSF ARCSS All-Hands Workshop, Seattle, WA (Feb., 2002); International Conference on Paleoceanography, Lisbon, Portugal (1998)
Instructor, Swiss Climate Summer School, Bern, Switzerland, (1999)
Honor's thesis panels for two undergraduates, Bates College, ME (2003)
Thesis committee, Sujata Murty, Oberlin College (2010-2012); Briana Hauf, Texas A&M Univ. (2009-2010); Angela Richards-Dona, Stony Brook Univ. (2009-2012); Tim Shanahan Univ. of Ariz. (2002-2006); Julio Sepulveda, Univ. of Concepcion, Chile (2002-2004)
Newspaper/magazine interviews, *Science World* (2012); *Hemispheres* (2010); *Washington Post*, *San Francisco Chronicle*, *Daily Telegraph (UK)* (2007), *New Yorker* (2006), *Associated Press* (2003), *Tucson Citizen* (2001)
Television interviews, *The History Channel* (2006), *NOVA/ABC* (2003)
Radio interviews, *NPR Our Ocean World* (Jan 2006), (Oct, Nov 2004)
Journal editorial interviews, *Geotimes* (2007), *Science* (2006, 2003), *Scientific American* (2004), *GSA Today* (2003)
Reviewer, research proposals for NSF Geosciences (Divisions OCE, EAR, and ATM) and Office of Polar Programs, NOAA Climate Change Data and Detection
Reviewer, research proposals for NERC-UK; Research Council of Norway; CONICYT, FONDECYT Chile; EuroClimate, ESF; CFCAS, Canada
Reviewer, manuscripts for *Science*, *Nature*, *Nature Geoscience*, *PNAS*, *Geology*, *GRL*, *GCA*, *EPSL*, *QSR*, *Rev. Geophys.*, *Paleocean.*, *Deep-Sea Research*, *Journal of Hydrology*.

PARTICIPATION IN WHOI EDUCATION PROGRAM:

Co-Instructor, Arctic System Course (2007)
Co-Instructor, Marine Chemistry Seminar (2002-2004)
Postdoctoral Advisor, Sean Bryan, WHOI Postdoctoral Scholar (2011-2012); Linda Ampel, Swedish Science Foundation Fellow (2010-2011); Amy Apprill, WHOI Postdoctoral Scholar (2010-2011); Timothy Shanahan, NOAA Climate and Global Change Postdoctoral Fellow (2006-2008); Sebastien Bertrand, BAEF Postdoctoral Fellow and Marie Curie OIF Postdoctoral Fellow (2005-2008); Nick Drenzek, WHOI Postdoctoral Investigator (2007); Nancy Grumet-Prouty, WHOI CICOR Postdoctoral Scholar (2004-2007); Pascale Poussart, WHOI NOSAMS Postdoctoral Scholar (2004-2006)
Thesis advisor, JP CO student Kyrstin Fornace (2010-present); JP CO student Whitney Bernstein (2008-2013); JP CO student Jessie Kneeland, (2006-2011); JP CO student Nick Drenzek (2002-2007); JP CO student Nathalie Goodkin (2002-2007); JP Mar Geo student Matt Makou (2000-2005)
Thesis committee, JP Mar Geo student Kristy Dahl (2002-2005); JP Mar Geo student David Lund (2001)
Advisor, Summer Student Fellow Sujata Murty, Oberlin College (2010, 2011); Summer Student Fellow Pam Barrett, Univ. Rochester (2005); Summer Student Fellow Huei-Ting Lin, Taiwan National Univ. (2002)

Host, Guest Student Guy Knapp, Falmouth Academy (2014); Guest Student Sujata Murty, Oberlin College (2011-2012); Guest Student Ryan Davis, Falmouth Academy (2010-2013); Guest Student Briana Hauff, Texas A&M Univ. (2009-2012); Guest Student Angela Dona, Stony Brook Univ. (2009-2012); Guest Student Paul Bergin, New York Catholic School (2010); Guest Student Linda Ampel, Stockholm Univ. (2006); Guest Student Jerome Kaiser, Univ. Potsdam (2005), Guest Student Peter Huybers, MIT (2002-2004); Guest Student Cris Barbero, Tufts University (2002)
Lecturer, Summer Student Lecture Series (2000, 2003, 2011)
MCG Postdoctoral Mentorship Committee (2007-present)
Postdoctoral Scholar Selection Committee (2008-2010)
Summer Student Fellow selection committee (2001-2003)

SUPERVISION AT WHOI:

Alec Cobban, Part-Time Helper (2014)
Ryan Davis, Part-Time Helper (2012-2013)
Sujata Murty, Guest Investigator (2012-2013)
James Cervino, Guest Investigator (2007-present)
Sean Sylva, Research Associate III (2008-present)
Justin Ossolinski, Research Assistant III (2007-present)
Kathryn Furby, Research Assistant II (2008-2010)
Chanda Bertrand, Research Assistant III (2001-2006).
Marley Bice, Part-Time Helper (2004-2005)
Li Xu, Research Associate III (2001-2003)
Louise Hildebrant, Visiting Scientist (2001)
Marcie Workman, Research Assistant I (2001)

FIELD EXPERIENCE/CRUISE PARTICIPATION:

Golfo Batabano, Cuba – Coral long core drilling, tissue sampling, Apr 17-May 3, 2015.
Co-chief Scientist, *M/Y Golden Shadow*, Chagos Archipelago – Coral long core drilling, Mar 4-30, 2015.
Jardines de la Reina, Cuba – Coral long core drilling, tissue sampling, Feb 4-14, 2015.
M/Y Golden Shadow, Great Barrier Reef, Australia – Coral ecological survey, Sept 2-Oct 2, 2014.
Vavvaru Atoll, Maldives – Coral long core drilling, tissue sampling, Jan 14-22, 2014.
SW Taiwan – Coral long core drilling, May 24-June 13, 2013.
Chief Scientist, *R/V Alucia*, Guam to Pohnpei, Micronesia – Coral long core drilling, tissue sampling and ecological survey, Oct 16-Nov 15, 2012.
Luzon Island, Philippines – Coral long core drilling, May 16-23, 2012.
Luzon Island, Philippines – Coral ecological survey and reconnaissance, May 5-15, 2011.
Hon Tre Island, Nha Trang, Vietnam – Coral long-core drilling, tissue sampling, Feb 28-Mar 8, 2011.
Chief Scientist, *M/V Dream Island*, Jeddah to Tiran, Red Sea, Saudi Arabia – Coral long-core drilling and tissue and water sampling, coral ecological transects, Sept 1-15, 2010.
Hon Tre Island, Nha Trang, Vietnam – Coral ecological survey and reconnaissance, Aug 9-13, 2010.
Florida Keys National Marine Sanctuary – Coral tissue sampling, ecological survey, June 12-14, 2010.
Chief Scientist, *M/V Dream Island*, Yanbu to Tiran, Red Sea, Saudi Arabia – Coral tissue and water sampling, coral ecological transects, May 17-June 2, 2010.
Tukangbesi Islands, SE Sulawesi, Indonesia – Coral tissue sampling, ecological survey, Aug 4-15, 2009.
Chief Scientist, *M/V Dream Island*, Jeddah to Al Lith, Red Sea, Saudi Arabia – Coral long-core drilling and tissue and water sampling, coral ecological transects, Oct 1-15, 2009.
Co-chief Scientist, *M/V Dream Master*, Jeddah to Al Lith, Red Sea, Saudi Arabia – Coral tissue and water sampling, coral ecological transects, June 8-19, 2009.
Florida Keys National Marine Sanctuary – Coral tissue sampling and ecological survey, Apr 3-10, 2009.
Chief Scientist, *M/V Dream Island*, Yanbu to Jeddah, Red Sea, Saudi Arabia – Coral long-core drilling and tissue and water sampling, coral ecological transects, Nov 11-25, 2008.

Co-chief Scientist, *M/V Dream Island*, Yanbu to Jeddah, Saudi Arabia – Coral tissue sampling and ecological survey, May 16 – June 1, 2008.
 Jeddah, Saudi Arabia – Survey and mapping of corals for future drilling, July 16-19, 2007.
 Key West Harbor and Looe Key, Florida Keys – Coral sampling and survey, Feb 8-13, 2007.
 Glovers Reef Atoll, Belize – Coral mapping and temperature logging, Oct 19-27, 2006.
 Cayos Cochinos and Utila Islands, Honduras – Coral long-core drilling, June 27-July 12, 2006.
 Coiba Island, Panama – Coral survey, Jan 16-22, 2006.
 Mangrove Lake, Bermuda – Sediment coring and vegetation sampling, Nov. 7-14, 2004.
 Chief scientist, *R/V Hermano Gines*, Punta de Piedras, Venezuela – Sediment coring, vegetation and water sampling in Cariaco Basin, May 21-28, 2004.
 Co-chief scientist, *R/V Clifford Barnes*, Seattle, WA – Sediment coring and water sampling in Saanich Inlet, Sept. 2-9, 2003.
 Co-chief scientist, *R/V Vidal Gormaz* Puerto Montt, Chile – Southern fjord sediment coring and surface transect sampling, Nov. 9-28, 2001.
R/V New Horizon, San Francisco, CA to San Diego, CA – Sediment coring and water sampling, May 25-June 13, 2001.
 Isla Canales de Tierra and surrounding islands, Panama – Coral survey, Mar 4-7, 2005.
 Bunaken Island, Sulawesi, Indonesia – Fossil coral long-core drilling, Sept 9-30, 1998, Aug 4-27, 1997.
 Baffin Island, Eastern Canadian Arctic – Glacial geology/Lake sediment coring, 8 seasons, 1991-1998.

INVITED PRESENTATIONS AND LECTURES

“Coral reef ecosystems and records of past climate change”, Advanced Biotechnology Institute summer program, July 15, 2015.
 “Coral records of climate and environmental change”, Science Made Public, WHOI Exhibit Center, July 14, 2015.
 “SW Indian Monsoon from Coral Ba/Ca Records”, Earth Observatory of Singapore, Mar. 31, 2015.
 “Coral reef ecosystems and records of past climate change”, Advanced Biotechnology Institute summer program, July 10, 2014.
 “Paleoclimate records from coral archives”, Living Oceans Foundation, Feb. 20, 2014.
 “Corals as Records of Environmental and Climate Change”, WHOI Science Journalism Fellows, Sept. 13, 2012.
 “Corals as Recorders of Environmental Stress and Coral Health”, School of Biological Sciences, University of Hong Kong, Mar. 7, 2011.
 “Biogeochemistry in Corals and Symbionts: New Tools to Evaluate Coral Stress and Aid Conservation”, WHOI Trustees, July 5, 2011.
 “Living Sea Scrolls: Records of Environmental Change and Ecosystem Stress on Corals”, WHOI Associates Annual Meeting, June 25, 2010.
 “Geochemical Records from Coral Skeleton: Climate, Environmental Stress and Coral Health”, WHOI Science Journalism Fellows, Sept. 17, 2009.
 “Western Atlantic Intertropical Convergence Zone Variability over the Last Full Glacial Cycle”, Chapman Conference on Abrupt Climate Change, Ohio State U., June 17, 2009.
 “Update and extension of the IntCal04 14C calibration back to 55 ka”, 5th International Radiocarbon and Archaeology Symposium, Zurich Switzerland, March 26-28, 2008.
 “Reducing and Representing Uncertainties in High-Resolution Proxy Data: Marine Sediments”, NSF/NOAA Reducing Proxy Uncertainty Workshop, Trieste Italy, June 9-11, 2008
 “Red Sea Coral Reef Ecosystem Research”, KAUST Global Research Partners Symposium, Jeddah KSA, May 29, 2008.
 “¹⁴C Calibration and Marine Reservoir Age Variability back to 55 ka”, ESF EuroClimate Spring School, Piran Slovenia, Apr. 21-25, 2008.
 “Varved Sediment: Part I”, ESF EuroClimate Spring School, Piran Slovenia, Apr. 21-25, 2008.

- “Lipid Biomarkers in Coral Symbionts, Host Tissue and Aragonite Skeleton: Potential for a new Index of Coral Thermal Stress”, NOAA Climate and Global Change Summer Institute, Steamboat Springs CO, July 13-17, 2008.
- “Global ^{14}C Activity Over the Past 50 ka: Implications for Reservoir Age and Carbon Cycle Changes”, *17th Int'l Quaternary Association Congress*, Cairns, Australia, July 28-August 3, 2007.
- “Intcal04 Update: A Preliminary Extension Of The ^{14}C -Calendar Age Curve Back To 50 Ka”, *EGU General Assembly*, Vienna, Austria, Apr. 15-18, 2007.
- “Marine ^{14}C Calibration Over the Past 50 ka: Current Status and Future Challenges”, *EuroClimate Workshop*, Heidelberg, Germany, March 5-7, 2007.
- “Marine ^{14}C Calibration and Activity Record for the Past 50,000 Years from the Cariaco Basin”, 2nd Carlsberg Dating Conference, Copenhagen, Denmark, Nov. 15-17, 2006.
- Keynote address, “Marine ^{14}C Data Sets: Contributions to calibration and Earth Systems research” *19th International Radiocarbon Conference*, Oxford, UK, Apr. 2-6, 2006.
- “Millennial Scale Variability in Tropical South American Vegetation During the Last Glaciation” *AGU Fall Meeting*, S.F., CA, Dec. 2005
- “Cariaco Basin Update: A Revised ^{14}C Calibration 0-60 ka” *Carlsberg Dating Conference*, Copenhagen, Denmark, Aug. 15-18, 2005.
- Plenary talk, “Arctic Paleoclimate research: Goals and Future Needs for SEARCH Science” *SEARCH Implementation Workshop*, Wash. DC, May 23-25, 2005.
- ”Terrestrial Plant Biomarkers Record Abrupt Tropical Vegetation Response to Rapid Climate Changes” Univ. S. Florida, St. Petersburg, FL, Apr. 22, 2005.
- ”Synchronous Deglacial Climate Shifts in Tropical and High-Latitude N. Atlantic Regions: The Timing of Tropical Vegetation Response to Rapid Climate Changes” Univ. Arizona, Tucson, AZ, Apr. 14, 2005.
- “Linking vegetation and climate change in northern South America during the Late Holocene” *Workshop on Climate and Cultural History in the Americas*, Centro Ecológico de Akumal, Quintana Roo, México, Mar. 30-Apr. 2, 2005.
- ”The Timing of Rapid Tropical Vegetation Shifts Following Abrupt Climate Changes” Earth and Ocean Sciences Division, Duke Univ., Durham, NC, Jan. 14, 2005.
- “Terrestrial Plant Biomarkers Preserved in Cariaco Basin Sediments: Records of Abrupt Tropical Vegetation Response to Rapid Climate Changes” *AGU Fall Meeting*, S.F., CA, Dec. 2004.
- “Abrupt Tropical Vegetation Change During Deglaciation: Identifying Synchronous Climate Shifts at High and Low Latitudes”, Dept. of Earth Sciences, Syracuse Univ. Syracuse, NY (Dec. 2004).
- ”Growth-Dependent Sr/Ca-SST Calibration in Slow-Growing Brain Corals from Bermuda”, Dept. of Earth Sciences, Syracuse Univ. Syracuse, NY (Dec. 2004).
- “Abrupt Tropical Vegetation Response to Rapid Climate Changes”, Univ. of Mass., Dartmouth, (Apr. 2004)
- “Tolkienesque Tales: A decade-worth of fantasy presented in 3 acts” or “Synchronous high and low-latitude North Atlantic climate change during the last deglaciation”, MIT Geochemistry Seminar (Apr. 2004)
- “Summer Surface Temperature and Arctic Oscillation Variability for the Past 600 Years”, Harvard Univ. Earth Sciences Dept. (Apr. 2004)
- ”Abrupt Tropical Vegetation Response to Rapid Climate Changes”, Univ. of Minn., Earth Sciences Dept. (Mar. 2004)
- “ ^{14}C Calibration and Carbon Cycle from 0-50 ka”, Univ. of Minn., Earth Sciences Dept. (Mar. 2004)
- Keynote address – John Wiley Lecture, “Synchronous High and Low-Latitude North Atlantic Climate Change during the Last Deglaciation”, *Quaternary Research Association and Geological Society of London Annual Meeting*, University of Wales, Bangor (Jan. 2004).
- Keynote address, “Summer-Season Arctic Oscillation and Surface Temperature for the Past 6 Centuries”, *SEARCH Open Science Meeting*, Seattle, WA (Oct. 2003).
- “ ^{14}C Activity and Global Carbon Cycle Changes Back to 50,000 Years BP”, *Heinrich Events and Sea Level Symposium*, LDEO, NY (Oct 2003).

“Synchronous High And Low-Latitude North Atlantic Climate Change During The Last Deglaciation”, *16th INQUA Congress*, Reno, NV (July 2003).

“Spatial and Temporal Modes of Variability In Arctic Summer Temperature During The Past 500 Years”, *16th INQUA Congress*, Reno, NV (July 2003).

“Multiple Proxy Records of Abrupt Climate Changes”, WHOI Science Journalism Fellows Lecture, (Sept. 2002).

“Synchronous Timing of Abrupt Paleoclimate Changes Between High and Low-Latitude Atlantic Regions”, *6th INTIMATE IGCP Pages*, Tromso, Norway (June, 2002).

“High-resolution Radiocarbon Calibration from 15-9 cal kyr BP”, *INTCAL04 ¹⁴C Calibration Workshop*, Queen’s University, Belfast, N. Ireland (April 2002).

“¹⁴C Calibration from 0-50 cal kyr BP, using Cariaco Basin Sediments and the GISP2 Time Scale”, *INTCAL04 ¹⁴C Calibration Workshop*, Queen’s University, Belfast, N. Ireland (April 2002).

“Paleoclimate Records from Organic Biomarkers”, Trinity College, Dublin, Ireland, Geogr. Dept. (April 2002).

“Spatial and Temporal Variability of Arctic Surface Temperature over the Last 400 Years”, *2nd NSF ARCSS All-Hands Workshop*, Seattle, WA, (Feb. 2002).

“Synchronous Tropical-High Latitude Paleoclimate Changes during the Last Deglaciation”, *Fall AGU*, San Francisco, CA, (Dec. 2001).

Boston University, Earth Sciences Dept. (2001).

Bates College, Geology Dept. (2001).

Spring AGU, Boston, MA (2001).

Fall AGU, S.F., CA (2000).

SCOR-IMAGES Workshop, Trins, Austria (2000).

Univ. S. Carolina Columbia, Geology Dept. (1999).

Plenary talk, *15th INQUA Cong.*, Durban, S. Africa (1999).

Brown Univ., Geology Dept. (1998).

Plenary talk, *15th AMQUA Cong.*, Puerto Vallarta, Mexico (1998).

10th ARCUS Meeting, Wash. DC (1998).

Univ. Mass. Amherst, Geosciences Dept. (1998).

1st INTIMATE IGCP Pages, Lund, Sweden (1997).

LDEO Climate Symposium (1997).

16th Radiocarbon Conf., Groningen, Netherlands (1997).

Princeton Univ., GFDL (1997).

7th Goldschmidt Conf., Tucson, AZ (1997).

4th IGCP 374, The Royal Society, London (1996).

3rd IGCP 374, U.C. Santa Barbara, CA (1995).

1st IGCP 374, The Geological Society, London (1993).

PUBLICATIONS IN PEER-REVIEWED JOURNALS AND BOOKS (*denotes first-author student or post-doc)

90. *Fornace, K., Whitney, B., Galy, V., Hughen, K., Mayle, F., Late Quaternary Environmental Change from the Interior South American Tropics; New Insights from Leaf Wax Stable Isotopes, *EPSL* (in review).
89. Hogg, A., Southon, J., Turney, C., Palmer, J., Ramsey, C., Fenwick, P., Boswijk, G., Friedrich, M., Gerhard, H., Hughen, K., Jones, R., Kromer, B., Noronha, A., Reynard, L., Staff, R., Wacker, L., Synchronous Interhemispheric Atmosphere-Ocean Change during the Last Glacial-Interglacial Transition, *Science Advances* (in review).
88. Goodkin, N.F., Wang, B.S., You, C.F., Hughen, K., Prouty, N., Bates, N.R., Doney, S., 2015, Water Advection and Biogeochemistry Moderate Inter-annual and Decadal Surface Water pH Changes in the Sargasso Sea, *Geophys. Res. Lett.* 42, 4931-4939, doi:10.1002/2015GL064431.

87. Shanahan, T.M., N. McKay, K.A. Hughen, J.T. Overpeck, W. Gosling, L. Miller, J.A. Peck, C. Scholz, C.W. Heil, J. King, CO₂ and fire influence abrupt savanna-woodland transitions in the tropics since the Last Glacial Maximum *Science Advances* (in review).
86. Turney, C., Thomas, Z., Hutchinson, D., Bradshaw, C., Brook, B., England, M., Fogwill, C., Jones, R., Palmer, J., Hughen, K., Cooper, A., Obliquity-Driven Expansion Of North Atlantic Sea Ice 31,000 Years Ago, *Geophys. Res. Lett.* (in review).
85. Cooper, A., Turney, C., Hughen, K., Brook, B., McDonald, H., Bradshaw, C., 2015, High-resolution timescale reveals climate-associated megafaunal turnover in Late Pleistocene Eurasia and North America, *Science* 349, 602-606.
84. Work, T.M., Aeby, G.S., Hughen, K.A., 2015, Gross and microscopic lesions in corals from Micronesia, *Veterinary Pathology* 1-10, doi:10.1177/0300985815571669.
83. *Bernstein, W., Hughen, K., Langdon, C., McCorkle, D., Lentz, S., Environmental Controls on Daytime Net Ecosystem Calcification on a Red Sea Reef Flat, *Coral Reefs* (revised, in 2nd review).
82. Shanahan, T., McKay, N., Hughen, K., Overpeck, J., Otto-Bliesner, B., Heil, C., King, J., Scholz, C., Peck, J., 2015, The time-transgressive demise of the African Humid Period, *Nature Geoscience* 8, 140-144.
81. *Bertrand, S., Hughen, K., Sepulveda, J., Pantoja, S., 2014, Covariability of precipitation seasonality and sea surface temperature in northern Chilean Patagonia during the late Holocene, *Quaternary Science Reviews* 105, 195-208.
80. *Fornace, K.L., Hughen, K.A., Shanahan, T.M., Fritz, S.C., Baker, P.A., Sylva, S.P., 2014, A 60,000-year record of hydrologic variability in the Central Andes from the hydrogen isotopic composition of leaf waxes in Lake Titicaca sediments, *EPSL* 408, 263-271.
79. *Bolton, A., Goodkin, N., Hughen, K., Ostermann, D., Vo, S., Phan, H., 2014, Paired *Porites* coral Sr/Ca and $\delta^{18}\text{O}$ from the western South China Sea: Proxy Calibration of Sea Surface Temperature and Precipitation, *Paleo* 3 410, 233-243.
78. Hughen, K., 2014, Marine Varves, In: *Encyclopedia of Scientific Dating Methods*, Eds., Rink, J., Thompson, J., Springer, DOI 10.1007/978-94-007-6326-5_162-1.
77. *Hauff, B., Cervino, J.M., Haslun, J.A., Krucher, N., Wier, A.M., Mannix, A.L., Hughen, K.A., Strychar, K.B., 2014, Genetically divergent *Symbiodinium* spp. display distinct molecular responses to pathogenic *Vibrio* and thermal stress, *Diseases of Aquatic Organisms* 112, 149-159.
76. Aeby, G.S., Work, T.M., Hughen, K.A., 2014, The first cyanobacterial infection of Crustose Coralline Algae discovered on the reefs of Pohnpei, Micronesia, *Bulletin of Marine Science* 90, 873-874.
75. *Furby, K., Apprill, A., Cervino, J., Ossolinski, J., Hughen, K., 2014, Incidences of lesioned Fungiidae corals in the eastern Red Sea related to water temperature and urban proximity, *Marine Environmental Research* 98, 29-38.
74. Hathorne, E., (Hughen, K. and 34 others), 2013, Inter-laboratory study for coral Sr/Ca and other element/Ca ratio measurements, *Geochemistry Geophysics Geosystems*, doi: 10.1002/ggge.20230.
73. *Shanahan, T., Hughen, K., Van Mooy, B., 2013, Environmental controls on GDGT distributions in Arctic lakes, *Organic Geochemistry* 64, 119-128.
72. Reimer, P.J. (Hughen, K. and 25 others), 2013, IntCal13 and Marine13 Radiocarbon Age Calibration Curves, 0-50,000 Years Cal BP, *Radiocarbon* 55, 1869-1887, doi: 10.2458/azu_js_rc.55.16947.
71. Reimer, P. (Hughen, K., and 24 others), 2013, Selection and treatment of data for radiocarbon calibration: an update to the international calibration (IntCal) criteria, *Radiocarbon* 55, 1923-1945, doi: 10.2458/azu_js_rc.55.17222.
70. Heaton, T., Bard, E., Hughen, K., 2013, Elastic tiepointing – Transferring chronologies between records via a Gaussian process, *Radiocarbon* 55, 1975-1997, doi: 10.2458/azu_js_rc.55.17777.
69. Bayer, T., Neave, M., Hussain, A., Aranda, M., Yum, L., Mincer, T., Hughen, K., Apprill, A., Voolstra, C., 2013, The microbiome of the Red Sea coral *Stylophora pistillata* is dominated by tissue-associated *Endozoicomonas* bacteria, *Applied & Environmental Microbiology*, doi:10.1128/AEM.00695-13.
68. Lamborg, C.H., Swarr, G., Hughen, K., Jones, R.J., Birdwhistell, S., Furby, K., Murty, S., Prouty, N.,

- Tseng, C-H., 2013, Determination of low-level mercury in coralline aragonite by calcination-isotope dilution-inductively coupled plasma-mass spectrometry and its application to *Diploria* specimens from Castle Harbour, Bermuda, *Geochimica et Cosmochimica Acta* **109**, 27-37.
67. *Shanahan, T., Hughen, K., Sauer, P., Ampel, L., Fornace, K., 2013, Environmental controls on the D/H values of terrestrial leaf waxes in the Eastern Canadian Arctic, *Geochimica et Cosmochimica Acta*, doi:10.1016/j.gca.2013.05.032.
66. *Kneeland, J., Hughen, K., Cervino, J., Hauff, B., Eglinton, T., 2013, Lipid biomarkers in *Symbiodinium* dinoflagellates: new indices of thermal stress, *Coral Reefs*, doi: 10.1007/s00338-013-1076-3.
65. *Prouty, N., Goodkin, N., Lamborg, C., Jones, R., Hughen, K., 2013, Environmental Assessment of Metal Exposure to Corals Living in Castle Harbour, Bermuda, *Marine Chemistry*, doi:10.1016/j.marchem.2013.05.002
64. *Bertrand, S., Hughen, K., Giosan, L., 2013, Limited influence of sediment grain-size on elemental XRF core scanner measurements, In: *Micro-XRF Studies of Sediment Cores*, Developments in paleoenvironmental research series, Springer.
63. Apprill, A., Hughen, K., Mincer, T., 2013, Species-specificity and not lesioned condition influences the bacterial communities associated with *Fungiidae* corals, *Environmental Microbiology*, doi:10.1111/1462-2920.12107.
62. Deplazes, G., Lückge, A., Peterson, L.C., Timmermann, A., Hamann, Y., Hughen, K.A., Röhl, U., Laj, C., Cane, M.A., Sigman, D.M., Haug, G.H., 2013, Response of tropical rainfall variability to North Atlantic climate during the last ice age, *Nature Geosciences* **6**, 213–217, doi:10.1038/ngeo1712.
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Coral Paleoclimate

<ftp://ftp.ncdc.noaa.gov/pub/data/paleo/coral/atlantic/bermuda2008.txt>

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Radiocarbon Calibration and Carbon Cycle

<http://www.ncdc.noaa.gov/paleo/pubs/hughen1998/>

<http://www.ncdc.noaa.gov/paleo/pubs/hughen2000/hughen2000.html>

<http://www.ncdc.noaa.gov/paleo/pubs/hughen2004/hughen2004.html>

https://www.ncdc.noaa.gov/cdo/f?p=519:1:0:::P1_STUDY_ID:5953

High-Latitude Paleotemperature

<http://www.ncdc.noaa.gov/paleo/sciencepub/front.htm>

<http://www.ncdc.noaa.gov/paleo/arctic/summary.php>

ftp://ftp.ncdc.noaa.gov/pub/data/paleo/paleolimnology/northamerica/canada/baffin/soper_2000.txt

ftp://ftp.ncdc.noaa.gov/pub/data/paleo/paleolimnology/northamerica/canada/baffin/donard_2001.txt

ftp://ftp.ncdc.noaa.gov/pub/data/paleo/contributions_by_author/sepulveda2009/sepulveda2009.txt

Paleoclimate Data and Age Models

ftp://ftp.ncdc.noaa.gov/pub/data/paleo/contributions_by_author/hughen1996/

ftp://ftp.ncdc.noaa.gov/pub/data/paleo/contributions_by_author/haug2001/

<http://www.ncdc.noaa.gov/paleo/pubs/lea2003/lea2003.html>

ftp://ftp.ncdc.noaa.gov/pub/data/paleo/paleocean/sediment_files/complete/odp1002h-tab.txt

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ABSTRACTS: (*denotes first-authored abstracts by a student or post-doc)

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