

Laurel B. Childress

International Ocean Discovery Program
Texas A&M University
College Station, TX 77845
979-845-0506
childress@iodp.tamu.edu
<http://laurelchildress.wordpress.com>

*Curriculum Vitae
and List of Publications*

September 2017

Education

Ph.D. Earth and Planetary Sciences, Northwestern University, 2016

M.S. Marine Geology, Minor/Certificate **GIS**, North Carolina State University, 2009

B.S. Marine Sciences, Cum Laude, North Carolina State University, 2006

Positions Held

Expedition Project Manager/Staff Scientist September 2017 – present

Texas A&M University, International Ocean Discovery Program

National Ocean Sciences Accelerator Mass Spectrometry Facility Postdoctoral Scholar

September 2016 – September 2017, Woods Hole Oceanographic Institution

Marine Chemistry and Geochemistry Department and National Ocean Sciences

Accelerator Mass Spectrometry Facility

Graduate Research Assistant August 2009 – August 2016

Northwestern University, Department of Earth and Planetary Sciences

Expedition Party Geochemist/Sedimentologist June – August 2013

International Ocean Drilling Program, Expedition 341, Southern Alaska Margin

Schlanger Scientific Ocean Drilling Fellowship 2012 – 2013

Northwestern University, Department of Earth and Planetary Sciences

Geographic Information Systems Student Aide January 2012 – August 2014

Northwestern University, Northwestern University Library

Graduate Teaching Assistant 2010, 2012

Northwestern University, Department of Earth and Planetary Sciences

Graduate Research and Teaching Assistant January 2007 – August 2009

North Carolina State University, Department of Marine, Earth, & Atmospheric Sciences

Research Assistant May – December 2006

North Carolina State University, Department of Marine, Earth, & Atmospheric Sciences

Professional Interests

Biogeochemical cycles, with an emphasis on transport, transformation, and burial of organic carbon; active margin sediment export and subduction; tectonic and glacial influences on carbon exhumation; geospatial biochemical patterns; science outreach.

Awards and Fellowships

NSF GeoPRISMS Student Poster

*Planning Workshop for the New Zealand Primary Site, Wellington, New Zealand,
Honorable Mention, 2013*

Schlanger Scientific Ocean Drilling Fellowship

Northwestern University, 2012 – 2013

Marion Sloss Outstanding Teaching Assistant Award

Northwestern University, Department of Earth and Planetary Sciences, 2012

NSF MARGINS Student Prize

AGU Fall Meeting, Honorable Mention, 2008

Funding and Research Awards

Integrated Ocean Drilling Program	\$15,000
<i>Post Expedition (341) Activity Award, 2014 - 2015</i>	
Integrated Ocean Drilling Program, U.S. Science Support Program	\$30,000
<i>Schlanger Scientific Ocean Drilling Fellowship, 2012 – 2013</i>	
National Science Foundation	\$265,535
<i>“The Subduction Margin Carbon Cycle: A Preliminary Assessment of the Distribution Patterns of Multicycle Carbon”, February 2012 – May 2016</i>	
<i>Supported student and co-author, under Principal Investigator Neal Blair</i>	

Teaching

EARTH 390/ISEN 390, Northwestern University, Instructor, Geographic Information Systems
Application in Earth/Environmental Science

EARTH 106, Northwestern University, Teaching Assistant, The Ocean, The Atmosphere & Our
Climate

EARTH 103, Northwestern University, Teaching Assistant, Geological Hazards

N’CAT Program, Northwestern University, Tutor, Geologic Hazards, Exploration of the Solar
System

MEA 110, North Carolina State University, Teaching Assistant, Geology I

MEA 251, North Carolina State University, Teaching Assistant, Introduction to Coastal
Environments

MEA 450, North Carolina State University, Teaching Assistant, Introductory Sedimentary
Petrology and Stratigraphy

Advisors

B.A., M.S., North Carolina State University: **Elana L. Leithold**

Ph.D., Northwestern University: **Neal E. Blair and Steven D. Jacobsen**

Postdoctoral Research at Woods Hole Oceanographic Institution: **Valier Galy and Ann McNichol**

Work in Progress

Childress, L.B. and K. Ridgway, Glacial and tectonic influence on terrestrial organic carbon delivery to high latitude deep marine systems: IODP Site U1417, Surveyor Fan, Gulf of Alaska, in preparation for submission to *Palaeogeography, Palaeoclimatology, Palaeoecology*.

Childress, L.B., Blair, N.E., Leithold, E.L., Kuehl, S.A., and A. Orpin, Continental shelf organic carbon preservation in active margin system, 10 ka record: Waipaoa River, New Zealand, in preparation for submission to *Continental Shelf Research*.

Fieldwork

Integrated Ocean Drilling Program (IODP) May – July 2013

Expedition 341, Southern Alaska Margin

New Zealand, Waipaoa River Watershed 2007, 2009, 2013

NSF MARGINS and GeoPRISMS

Cascadia In Motion (Columbia University) June – July 2012

Active Source Seismic Experiments, Juan de Fuca Plate

University-National Oceanographic Laboratory System (UNOLS) September 2011

Early Career Chief Scientist Training Cruise, Astoria Canyon

Instrumentation and Software Experience

Instrument/Hardware: Thermo Delta V Plus IRMS (Conflo III, IV), Elemental Analyzer (Flash 1112, Costech 4010), CDS Pyroprobe 5200, FTIR (Nicolet Impact 400, Bruker 37 Tensor, HYPERION Microscope), Thermo Trace GC-DSQII MS, micro-Raman Spectrometer, Beckman Coulter SA 3100, freeze dryer, vacuum line

Software: ArcGIS 10, GRASS, FORTAN, Python, VBA, Sigma Plot 10, Origin, MATLAB, PeakFit

Workshops and Short Courses

NSF-Sponsored Workshop: Thermal Analysis of Natural Organic Matter (Ramped PyrOx)

Woods Hole, MA, September 15 – 16, 2016

IODP Southern Alaska Margin, Expedition 341: Post-Cruise Meeting

Friday Harbor, WA, November 16 – 18, 2015

Deep Carbon Observatory Thematic Institute on "Carbon, from the Mantle to the Surface"

Berkeley, California, June 30 – July 3, 2015

On the Cutting Edge: "Preparing for an Academic Career in the Geosciences" Madison,

Wisconsin, May 31 – June 3, 2015

Investigating Cascadia Subduction Zone Geodynamics Through Scientific Ocean Drilling

Seattle, Washington, April 29 – May 1, 2015

U.S. Advisory Committee for Scientific Ocean Drilling (USAC) Summer Meeting and Schlanger Fellowship Research Results Presentation

Washington, D.C., June 30 – July 3, 2014

UNOLS Council Meeting

Arlington, VA, March 12, 2014

IODP Southern Alaska Margin, Expedition 341: Post-Expedition Sampling Party

College Station, TX, November 16 – 22, 2013

IODP Southern Alaska Margin, Expedition 341: Post-Expedition Editorial Meeting

College Station, TX, November 13 – 15, 2013

Scientific Ocean Drilling Workshop: Multidisciplinary Transect Drilling During Transits

College Station, TX, November 11 – 13, 2013

GeoPRISMS Planning Workshop for the New Zealand Primary Site

Wellington, New Zealand, April 15 – 17, 2013

GeoPRISMS – EarthScope Planning Workshop for the Cascadia Primary Site

Portland, OR, April 5 – 6, 2012

Short Course on Shipboard Sedimentology: Data Collection, Integration, and Synthesis

College Station, TX, October 1 – 4, 2012

CIC Center for Library Initiatives Conference, Finding Our Way: Collaborative Strategies for Developing Geospatial Services

Minneapolis, MN, May 15 – 16, 2012

GeoPRISMS Implementation Workshop: Subduction Cycles & Deformation (SCD)

Austin, TX, January 5 – 7, 2011

Engaging Early Career Scientists in Future Scientific Ocean Drilling

College Station, TX, March 30 – April 1, 2011

Towards Integration and Synthesis of MARGINS S2S Research in PNG and NZ Focus Areas

Gisborne, New Zealand, April 5 – 9, 2009

Committee Membership

Member, University Library Committee, October 2012 – May 2016

Member, NCSU Park Scholarship Regional Selection Committee, 2011 - present

Chair (Service), Northwestern University Graduate Student Association, 2010 - 2013

Outreach and Synergistic Activities

Falmouth High School Career Day

Mentor, Woods Hole Oceanographic Institution, November 2016

Course Design Workshop

Facilitator, Northwestern University, February 2016

Mini-Research Experience for Teachers: Climate Change & Sustainability

Facilitator, Northwestern University, August 2015

Blair Laboratory Webmaster

Northwestern University, January 2014 – August 2016

Park Scholarship Senior Retreat

Mentor, North Carolina State University, August 2013

Expedition 341, Education and Outreach

Integrated Ocean Drilling Program, May – July 2013

Science Fair Judge

Chicago Public Schools, December 2012

Creating Leaders for STEM Student Research Program

Facilitator, Northwestern University, August 2011

NASA and Chicago Public Schools Capstone Course for Space Science

Facilitator, Northwestern University, July 2010, 2011

Center for Talent Development, EXCITE Project

Facilitator and Educator, Northwestern University, 2009 – 2016

Invited Talks

Woods Hole Oceanographic Institution, Marine Chemistry and Geochemistry Department,
February 28, 2017:

The Subduction Margin Carbon Cycle

**Texas A&M University, Department of Geology and Geophysics, International Ocean
Discovery Program,** July 22, 2016:

The Active Margin Carbon Cycle: Influences of Climate and Tectonics

List of Publications

Journal Publications

- Childress, L.B.** and S.D. Jacobsen. 2017. High-pressure high-temperature Raman spectroscopy of kerogen: relevance to subducted organic carbon, *American Mineralogist*, doi: 10.2138/am-2016-5719
- Gulick, S.P.S., Jaeger, J.M., Mix, A.C., Asahi, H., Bahlburg, H., Belanger, C.L., Berbel, G.B.B., **Childress, L.**, Cowan, E., Drab, L., Forwick, M., Fukumura, A., Ge, S., Gupta, S., et al. 2015. Mid-Pleistocene climate transition drives net mass loss from rapidly uplifting St. Elias Mountains, Alaska. *Proceedings of the National Academy of Sciences*, p. 1–6, doi: 10.1073/pnas.1512549112
- Kuehl, S.A., Alexander, C., Bever, A., Blair, N., Cerovski-Darriau, C., **Childress, L.**, Hale, R., Corbett, D.R., Harris, C.K., Leithold, L., Litchfield, N., Marsaglia, K.M., Moriarty, J., Ogston, A., Orpin, A., Pierce, L.E.R., Roering, J., and J.P. Walsh. 2015. A Source to Sink Perspective of the Waipaoa River Margin, *Earth Science Reviews*, doi:10.1016/j.earscirev.2015.10.001
- Leithold, E.L., Blair, N.E., **Childress, L.B.**, Brulet, B.R., Marden, M., Orpin, A.R., Kuehl, S.A., and C.R. Alexander. 2013. Deciphering the signals of watershed change from organic carbon buried on the continental margin seaward of the Waipaoa River, New Zealand. *Marine Geology*, doi: 10.1016/j.margeo.2013.10.007
- Blair, N.E., Leithold, E.L., Brackley, H., Trustrum, N., Page, M., and **L.B. Childress**. 2010. Terrestrial sources and export of particulate organic carbon in the Waipaoa sedimentary system: Problems, progress and processes. *Marine Geology*, 270: 108 – 118.
- Childress, L.B.**, Leithold, E.L., Blair, N.E., and B.R. Brulet. 2010. Carbon and nitrogen stable isotopes as proxies for Late Pleistocene to Holocene environmental change in the Waipaoa Sedimentary System, New Zealand. *Geochimica et Cosmochimica Acta*, 74 (11): A175.
- Blair, N.E., Fournillier, K., Leithold, E.L., and **L.B. Childress**. 2010. Resolving organic carbon of differing diagenetic/catagenetic states in riverine and marine sediments. *Geochimica et Cosmochimica Acta*, 74 (11): A95.

Technical and Other Publications

Jaeger, J.M., Gulick, S.P.S., LeVay, L.J., and the **Expedition 341 Scientists**, 2014. Proc. IODP, 341: College Station, TX (Integrated Ocean Drilling Program). doi:10.2204/iodp.proc.341.2014

Expedition 341 Scientists, 2014. Southern Alaska Margin: interactions of tectonics, climate, and sedimentation. *IODP Prel. Rept.*, 341. doi:10.2204/iodp.pr.341.2014

Childress, L. B. and N. E. Blair, 2013. The Active Margin Carbon Cycle. White Paper, GeoPRISMS Planning Workshop for the New Zealand Primary Site.

Shipboard Scientific Party, 2011. UNOLS Early Career Chief Scientist Training Cruise Report, R/V *Wecoma*, W1109C. NSF Grant OCE-1041068 (PI: Reimers).

Published Abstracts & Presentations

Cruz, A., McNichol, A., Gagnon, A., Burton, J., **Childress, L. B.**, Elder, K., Lardie Gaylord, M., Gospodinova, K., Hlavenka, J., Kurz, M., Longworth, B., Roberts, M., Trowbridge, N., Walther, T., and L. Xu (2017), Advances in sample preparation at the National Ocean Sciences Accelerator Mass Spectrometry Facility (NOSAMS). The 14th International Conference on Accelerator Mass Spectrometry

Childress, L.B., Blair, N.E., Orpin, A., and K. Fournillier (2015), Tracking small mountainous river derived terrestrial organic carbon across the active margin marine environment. AGU Fall Meeting

Childress, L.B. and Expedition 341 Science Party (2015), Source to Sink: Tracking Organic Carbon in the Glaciated Setting. IODP Expedition 341 Post-Cruise Meeting, Friday Harbor, WA

Childress, L.B. (2015), Sedimentary Organic carbon: Active margin inputs and fluxes. Deep Carbon Observatory Thematic Institute on "Carbon, from the Mantle to the Surface", Berkeley

Childress, L.B., Ridgway, K., and IODP Expedition 341 Scientists (2014), Glacial and tectonic influence on terrestrial organic carbon delivery to high latitude deep marine systems: IODP Site U1417, Surveyor Fan, Gulf of Alaska. AGU Fall Meeting

Blair, N.E., Leithold, E.L., Thompson, C.E., **Childress, L.B.** and K.F. Fournillier (2014), The Fate of Soil OC in the Marine Environment: Examples from the Rapidly Eroding Landscapes of Two New Zealand North Island Rivers. AGU Fall Meeting

Montes, M.L.S., McClymont, E.L., Müller, J., Moy, C., Lloyd, J.M. and **Expedition 341 Scientists** (2014), Climate-ice sheet interactions through the Pliocene-Pleistocene: Preliminary results from Expedition 341 (Gulf of Alaska). AGU Fall Meeting

- St-Onge, G., Francus, P., Labrie, J., Beauvais, Q., Velle, J., Fortin, D., Mix, A., Jaeger, J., Stoner, J., Zolitschka, B., **IODP Exp. 341 Scientists** and the PASADO Science Team (2014), CAT-scan analysis in scientific drilling: effective routine data acquisition and processing of whole cores, split cores and u-channels. AGU Fall Meeting
- Daigle, H., Piña, O., Sreaton, E.J., James, S., and the **IODP Expedition 341 Scientists** (2014), Physical properties of southern Alaska margin sediments in the context of global convergent margins. AGU Fall Meeting.
- Asahi, H., Mix, A.C., Suto, I., Belanger, C.L., Fukumura, A., Gupta, S.M., Konno, S., Matsuzaki, K.M., Romero, O.E., Nam, S. and **IODP Expedition 341 Scientists** (2014), Oxygen isotope stratigraphy in the Gulf of Alaska (IODP Exp. 341). AGU Fall Meeting
- Mote, Alison; Lockwood, Jeff; Ellins, Katherine K.; Haddad, Nick; Ledley, Tamara Shapiro; Lynds, Susan; McNeal, Karen S.; Libarkin, Julie; and **IODP Expedition 341 Science Party** (2014), EarthLabs Climate Detectives: Using the Science, Data, and Technology of IODP Expedition 341 to Investigate the Earth's Past Climate History. AGU Fall Meeting
- Montelli, A. I., Gulick, S. S., Worthington, L. L., Mix, A., Zellers, S.D. , Jaeger, J.M. and **Expedition 341 Science Party** (2014), Seismic stratigraphy of the Bering Trough, Gulf of Alaska: Late Quaternary history of Bering Glacier dynamics. AGU Fall Meeting
- Müller, J., Romero, O., McClymont, E., Stein, R., Fahl, K. and **IODP Expedition 341 Scientists** (2014), Palaeoenvironmental conditions in the Gulf of Alaska (NE Pacific) during the Mid Pleistocene Transition. AGU Fall Meeting
- Reece, R., Gulick, S.P.S. and **IODP Expedition 341 Scientists** (2014), Deciphering the transitional tectonics of the Southern Alaskan Margin through gulf sedimentology and geophysics: IODP Expedition 341. AGU Fall Meeting
- Jaeger, J.M., Gulick, S.P.S. and **IODP Expedition 341 Scientists** (2014), Gulf of Alaska Cryosphere and Paleoceanography in the Neogene: IODP Expedition 341 Southern Alaska. AGU Fall Meeting
- Penkrot, M., Jaeger, J., LeVay, L., St-Onge, G., Mix, A., Davies-Walczak, M., Gulick, S.P. and **Integrated Ocean Drilling Program Expedition 341 Scientists** (2014), Northern Cordilleran Ice Sheet Dynamics in Coastal Alaska from MIS 3 to the Present: Initial Results. AGU Fall Meeting
- Moy, C.M., Addison, J., Finney, B., Bahlburg, H., **Childress, L.**, Cowan, E., Forwick, M., Mueller, J., Ribeiro, F., Ridgway, K. and the IODP Expedition 341 Science Party (2014), Late Pleistocene biogenic sedimentation in the Gulf of Alaska: A biogeochemical perspective from IODP Expedition 341. AGU Fall Meeting

Childress, L.B., Blair, N.E., and E.L. Leithold (2014) Organic carbon burial over the last 10 kyr by the Waipaoa River, NZ. Goldschmidt Conference, Sacramento

Childress, L.B., Ridgway, K., Blair, N., Bahlburg, H., Berbel, G., Cowan, E., Forwick, M., Gulick, S., Jaeger, J., März, C., McClymont, E., Moy, C., Muller, J., Nakamura, A., Ribeiro, F., and IODP Expedition 341 Scientists (2013), Potential links between onshore tectonics and terrestrial organic carbon delivery to distal submarine fan environments: IODP Site U1417, Surveyor Fan, Gulf of Alaska. Poster, AGU Fall Meeting

Cowan, E.A., Forwick, M., Bahlburg H., **Childress L.B.**, Moy, C.M., Müller, J., Ribeiro, F., Ridgway, K.D., and IODP Expedition 341 Scientific Party (2013), Southern Alaska glaciations recorded in deep-sea diamicts: Preliminary results from IODP Expedition 341. AGU Fall Meeting

Ridgway, K.D., Bahlburg, H., **Childress, L.B.**, Cowan, E.A., Forwick, M., Moy, C.M., Müller, J., Ribeiro, F., Gupta, S., Gulick, S.P.S., and J.M. Jaeger (2013), Neogene marine sedimentary record of the Gulf of Alaska: from the glaciers to the distal submarine fan systems. AGU Fall Meeting

Forwick, M., Cowan, E.A., Bahlburg, H., **Childress, L.B.**, Jaeger, J.M., Moy, C.M., Müller, J., Ribeiro, F., Ridgway, K.D., Gulick, S.P.S., Worthington, L.L., and R. Reece (2013) Early Pleistocene to Holocene glacial activity along the southern Alaska continental shelf inferred from the sedimentary record in the northern Gulf of Alaska – preliminary results. AGU Fall Meeting

Moy, C.M., Bahlburg, H., **Childress, L.B.**, Cowan, E.A., Forwick, M., Müller, J., Ribeiro, F., Ridgway, K.D., and A.C Mix (2013), Spatial and temporal patterns of Pleistocene biogenic sediment accumulation in the Gulf of Alaska. AGU Fall Meeting

Bahlburg, H., **Childress, L.B.**, Cowan, E.A., Forwick, M., Moy, C.M., Müller, J., Ribeiro, F., and K.D. Ridgway (2013), The provenance of clasts deposited on the Surveyor Fan, Gulf of Alaska: First results of IODP Expedition 341. AGU Fall Meeting

Blair, N.E., **Childress, L.B.**, Fournillier, K., and E.L. Leithold (2013), The burial of organic carbon over the last 10 kyr by the Waipaoa River, New Zealand sedimentary system. Poster, AGU Fall Meeting

Blair, N., Thompson, C., **Childress, L.**, and L. Leithold (2013), The fate of small active margin river POC in the marine environment. Goldschmidt Conference, Florence, Italy

Childress, L.B. and N.E. Blair (2013), The Subduction Margin Carbon Cycle: A Preliminary Assessment of the Distribution Patterns of Multicycle Carbon. Poster, GeoPRISMS Planning Workshop for the New Zealand Primary Site

- Carbotte, S.M., Canales, J.P., Carton, H.D., Nedimovic, M.R., Han, S., Marjanovic, M., Gibson, J.C., Janiszewski, H.A., Horning, G., Delescluse, M., Watremez, L., Farkas, A., Gorriz, B.B., Bornstein, G., **Childress, L.B.**, and B. Parker (2012), Evolution and hydration of the Juan de Fuca crust and uppermost mantle: a plate-scale seismic investigation from ridge to trench. AGU Fall Meeting.
- Blair, N.E., **Childress, L.B.**, and E.L. Leithold (2012), A conceptual watershed model describing the riverine export of particulate organic radiocarbon. Radiocarbon Conference, Paris, France
- Blair, N.E., Leithold, E.L., **Childress, L.B.**, and K. Fournillier (2011), The role of watershed storage on exported riverine organic carbon signatures. International Symposium on Soil Organic Matter, Leuven, Belgium
- Leithold, E., Blair, N., **Childress, L.**, and B. Brulet (2010), Long-term controls on the composition of particulate carbon buried offshore from the Waipaoa River, North Island, New Zealand. AGU Fall Meeting
- Childress, L.B.**, Blair, N.E., and E.L. Leithold (2010), Tracing Organic Carbon from the Terrestrial to Marine Environment via Coupled Stable Carbon Isotope and Lignin Analyses. Poster, AGU Fall Meeting
- Leithold, E.L., Blair, N.E., Brulet, B., **Childress, L.**, Almquist, K., and C. Hunt (2010), Picking apart the organic geochemical stratigraphic record on continental margins – An approach to deciphering the signals of terrestrial environmental change. Annual GSA Meeting, Denver
- Leithold, E.L., Blair, N.E., **Childress, L.B.**, and B.R. Brulet (2009), Long-term controls on the composition of particulate carbon buried offshore from the Waipaoa River, North Island, New Zealand. AGU Fall Meeting
- Childress, L.B.**, Leithold, E.L., Blair, N.E., and B.R. Brulet (2009), Use of carbon and nitrogen stable isotopes to study Late Pleistocene to Holocene environmental change in the Waipaoa Sedimentary System, New Zealand. Poster, MARGINS S2S Synthesis and Integration Workshop, Gisborne, NZ
- Leithold, E., **Childress, L.**, Brulet, B., and N. Blair. (2009), Deciphering the biogeochemical signals of Holocene environmental change preserved in sediment fractions on the Waipaoa margin, New Zealand. MARGINS S2S Synthesis and Integration Workshop, Gisborne, NZ
- Blair, N., Leithold, L., Brulet, B., **Childress, L.**, Canuel, E., Brackley, H., Trustrum, N., Page, M., and L. Carter (2009), The Source to Sink Evolution of Particulate Organic Carbon in the Waipaoa Sedimentary System. MARGINS S2S Synthesis and Integration Workshop, Gisborne, NZ

Childress, L.B., Leithold, E.L., Blair, N.E., and B.R. Brulet (2008), Use of carbon and nitrogen stable isotopes to study Late Pleistocene to Holocene environmental change in the Waipaoa Sedimentary System, New Zealand. Poster, AGU Fall Meeting

Blair, N.E., Leithold, E.L., Thompson, C.E., Lloyd, K.H., and **L.B. Childress** (2008), What does control the composition of POC exported from rivers? Ocean Sciences Meeting, Orlando FL

Leithold, E.L., Blair, N.E., **Childress, L.B.**, Brulet, B., and C.E. Thompson (2008), Signals of landscape destabilization on continental margins – comparisons of organic geochemical records from the Eel and Waipaoa shelves. Ocean Sciences Meeting, Orlando FL

Childress, L.B. and E. Stoddard (2003), Mapping and analysis of a diabase dike in the North Carolina Piedmont in an honors physical geology class. South-Central Section and Southeastern Section, GSA Joint Annual Meeting