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Department of Earth and Planetary Sciences
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Education and Professional Positions

Director of the Environmental Science Program, Northwestern University, 2015-2016.
Director of the Environmental Policy and Culture Program, Northwestern University, 2014-2016.
Director of the Environmental Science, Engineering and Policy Programs, Northwestern University, 2010-2016.
Professor, Department of Civil and Environmental Engineering, and Department of Earth and Planetary Sciences, Northwestern University, 2007- present
Adjunct Professor, Department of Marine, Earth and Atmospheric Sciences, North Carolina State University, 2007- 2019
Professor, Department of Marine, Earth and Atmospheric Sciences, North Carolina State University, 1998- 2007
Associate Professor, Department of Marine, Earth and Atmospheric Sciences, North Carolina State University, 1991-1998
Assistant Professor, Department of Marine, Earth and Atmospheric Sciences, North Carolina State University, 1985-1991
Research Associate, NASA-Ames Research Center, 1982-1984
Lecturer, Department of Chemistry, Stanford University, 1980-1981
NRC Research Associate, NASA-Ames Research Center, 1980-1981
Ph.D. (Organic Chemistry) Stanford University, 1980
B.S. (Chemistry) University of Maryland, 1975

Professional and Honorary Affiliations

American Association for the Advancement of Sciences
American Chemical Society: Organic and Geochemical Divisions
American Geophysical Union
Geochemical Society
Sigma Xi

Research Interests

Research has focused on the biogeochemical transformations of carbon with an emphasis on process-oriented studies of the fate of organic carbon in surface environments. Current projects involve the characterization and tracking of macromolecular organic matter with

an emphasis on resolving the age and compositional distribution of the material. One application is the study of the evolution of organic carbon as particles move from exposed bedrock on land to ultimate burial at sea. Anthropogenic impacts on the global C-cycle via land use and hydrologic engineering, such as reservoir construction are being investigated. Novel applications of carbon isotopic measurements, pyrolysis and spectroscopic methods are key elements of this research. The role of soil fungi in the sequestration of organic matter has been another focus as has been in situ isotopic probes of methanogenic pathways.

Publications

Sensitivity of a Meandering Lowland River to Intensive Landscape Management: Lateral Migration Rates before and after Watershed-scale Agricultural Development. Anthropocene (2024) *doi.org/10.1016/j.ancene.2024.100429* (Rhoads, B.L., Anders, A.M., Banerjee, P., Grimley, D.A., Stumpf, A., Blair, N.E.).

Emergent role of critical interfaces in the dynamics of intensively managed landscapes. Earth-Science Reviews (2023) 244: 104543. *doi.org/10.1016/j.earscirev.2023.104543* (Kumar, P., Anders, A., Bauer, E., Blair, N.E., Cain, M., Dere, A., Druhan, J., Filley, T., Giannopoulos, C., Goodwell, A., Grimley, D., Karwan, D., Keefer, L., Kim, J., Marini, L., Muste, M., Papanicolaou, A.N.T., Rhoads, B.L., Rodriguez, L.C.H., Roque-Malo, S., Schaeffer, S., Stumpf, A., Ward, A., Welp, L., Wilson, C., Yan, Q., Zhou, S.).

Biomarker heatmaps: visualization of complex biomarker data to detect storm-induced source changes in fluvial particulate organic carbon. Earth Science Informatics (2023) *doi.org/10.1007/s12145-023-01039-y* (Kim, J., Blair, N.E.).

Storm pulse responses of fluvial organic carbon to seasonal source supply and transport controls in a midwestern agricultural watershed. Science of the Total Environment (2023) 869: 161647. *dx.doi.org/10.1016/j.scitotenv.2023.161647* (Hou, T., Blair, N.E., Papanicolaou, A.N.T., Filley, T.R.).

Metabolomics analysis of unresolved molecular variability in stoichiometry dynamics of a stream dissolved organic matter. Water Research (2022) 223: 118923. *doi.org/10.1016/j.watres.2022.118923* (Hassanpour, B., Blair, N., Aristilde, L.).

Eroded Critical Zone Carbon and Where to Find It: Examples from the IML-CZO. *In: Wymore, A.S., Yang, W.H., Silver, W.L., McDowell, W.H., Chorover, J. (eds) Biogeochemistry of the Critical Zone. Advances in Critical Zone Science* (2022). Springer, Cham. *doi.org/10.1007/978-3-030-95921-0_5* (Blair, N.E., Hayes, J.M., Grimley, D.A., Anders, A.). Springer-Nature, N.Y.

Magnetic Fly Ash as a Chronological Marker in Post-Settlement Alluvial and Lacustrine Sediment: Examples from North Carolina and Illinois. *Minerals (2021) 11: 476. doi.org/10.3390/min11050476* (Grimley, D.A., Lynn, A.S., Brown, C.W., Blair, N.E.).

The Spatiotemporal Evolution of Storm Pulse Particulate Organic Carbon in a Low Gradient, Agriculturally Dominated Watershed. *Frontiers in Water (2021) 3:600649. doi.org/10.3389/frwa.2021.600649* (Blair, N.E., Bettis, E.A. III, Filley, T.R., Moravek, J.A., Papanicolaou, A.N.T., Ward, A.S., Wilson, C.G., Zhou, N., Kazmierczak, B., Kim, J.)

Storm-induced Dynamics of Particulate Organic Carbon in Clear Creek, Iowa: An Intensively Managed Landscape Critical Zone Observatory Story. *Frontiers in Water (2020) 2:578261. https://doi.org/10.3389/frwa.2020.578261* (Kim, J., Blair, N.E., Ward, A.S., and Goff, K.).

Carbonate mineral identification and quantification in sediment matrices using diffuse reflectance infrared Fourier transform spectroscopy. *Environmental Chemistry Letters (2020) doi.org/10.1007/s10311-020-01027-4* (So, R.T., Blair, N.E., and Masterson, A.L.).

Fate of Ayeyarwady and Thanlwin Rivers Sediments in the Andaman Sea and Bay of Bengal. *Marine Geology (2020) doi.org/10.1016/j.margeo.2020.106137* (Liu, J.P., Kuehl, S.A., Pierce, A.C., Williams J., Blair, N.E., Harris, C., Aung, D.W., and Aye, A.A.).

Carbon mass balance, isotopic tracers of biogenic methane, and the role of acetate in coal beds: Powder River Basin (USA). *Chemical Geology (2019) doi.org/10.1016/j.chemgeo.2019.119329* (Vinson, D.S., Blair, N.E., Ritter , D.J., Martini, A.M., and McIntosh, J.C.).

The Intensively Managed Landscape Critical Zone Observatory: A Scientific Testbed for Understanding Critical Zone Processes in Agroecosystems. *Vadose Zone J., (2018) doi:10.2136/vzj2018.04.0088.* (Wilson, C., Abban, B., Keefer, L., Wacha, K., Dermisis, D., Giannopoulos, C., Zhou, S., Goodwell, A.E., Woo, D.K., Yan, Q., Ghadiri, M., Stumpf, A., Pitcel, M., Lin, Y-F., Marini, L., Storsved, B., Goff, K., Vogelgsang, J., Dere, A., Schilling, K.E., Muste, M., Blair, N.E., Rhoads, B., Bettis, A., Pai, H., Kratt, C., Sladek, C., Wing, M., Selker, J., Tyler, S., Lin, H., Kumar, P., and Papanicolaou, A.N.T.)

Critical Transition in Critical Zone of Intensively Managed Landscapes. *Anthropocene (2018) doi.org/10.1016/j.ancene.2018.04.002* (Kumar, P., Le, P.V.V., Papanicolaou, T., Rhoads, B.L., Anders, A.M., Stumpf, A., Wilson, C.G., Bettis, E.A. III, Blair, N., Ward, A.S., Filley, T., Lin, H., Keefer, L., Keefer, D.A., Lin, Y-F., Muste, M., Royer, T.V., Foufoula-Georgiou, E., Belmont, P.).

The C-biogeochemistry of a Midwestern USA agricultural impoundment in context: Lake Decatur in the Intensively Managed Landscape Critical Zone Observatory. *Biogeochemistry (2018) 138:171-195. doi.org/10.1007/s10533-018-0439-9* (Blair, N.E., Leithold, E.L., Papanicolaou, A.N.T., Wilson, C.G., Keefer, L., Kirton, E., Vinson, D., Schnoebelen, D., Rhoads, B., Yu, M., Lewis, Q.).

Centers of Organic Carbon Burial and Oxidation at the Land-Ocean Interface. *Organic Geochemistry (2017) doi.org/10.1016/j.orggeochem.2017.09.008* (Bianchi, T.S., Cui, X., Blair, N.E., Burdige, D.J., Eglinton, T.I., Galy, V.).

Microbial methane from in situ biodegradation of coal and shale: A review and reevaluation of hydrogen and carbon isotope signatures. *Chemical Geology (2017) 453: 128-145*. *doi:10.1016/j.chemgeo.2017.01.027* (Vinson, D.S., Blair, N.E., Martini, A., Larter, S., Orem, W.H., McIntosh, J.C.).

A Source to Sink Perspective of the Waipaoa River Margin. *Earth-Science Reviews (2016) doi: 10.1016/j.earscirev.2015.10.001*. (Kuehl, S.A., Alexander, C.R., Blair, N.E., Harris, C.K., Marsaglia, K.M., Ogston, A.S., Orpin, A.R., Roering, J.J., Bever, A.J., Bilderback, E.L., Carter, L., Cerovski-Darriau, C., Childress, L.B., Corbett, D.R., Hale, R.P., Leithold, E.L., Litchfield, N., Moriarty, J.M., Page, M.J., Pierce, L.E.R., Upton, P. and Walsh, J.P.).

Source to Sink Sedimentary Systems and Global Organic Carbon Burial: A River Runs Through It. *Earth-Science Reviews (2016) doi:10.1016/j.earscirev.2015.10.011* (Leithold, E.L., N. E. Blair, K.W. Wegmann).

Quantification of Water in Majorite Garnet. *American Mineralogist (2015) 100:1084-1092*, (Thomas, S.-M., Wilson, K., Koch-Müller, M., Hauri, E.H., McCammon, C., Jacobsen, S.D., Lazarz, J., Rhede, D., Ren, M., Blair, N., Lenz, S.).

Contribution of fungal macromolecules to soil carbon sequestration. In Soil Carbon *(2014),* Book Series: Progress in Soil Science, (Eds: Alfred Hartemink and Kevin McSweeney), *doi: 10.1007/978-3-319-04084-4_16* (Schreiner, K.M., Blair, N.E., Egerton-Warburton, L., Levinson, W.J.), Springer Press, pp 155-161.

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The Fate of Terrestrial Organic Carbon in the Marine Environment. *Annu. Rev. Mar. Sci. (2012) 4,* 401-423*, doi: 10.1146/annurev-marine-120709-142717* (N.E. Blair and R.C. Aller).

Terrestrial Sources and Export of Particulate Organic Carbon in the Waipaoa Sedimentary System: Problems, Progress and Processes. *Mar. Geol. (2010) 270*, 108-118, *doi:10.1016 /j.margeo.2009.10.016* (N.E. Blair, E.L. Leithold, H. Brackley, N. Trustrum, M. Page, and L. Childress).

Dispersal and transformation of organic carbon across an episodic, high sediment discharge continental margin, Waipaoa sedimentary system, New Zealand. *Mar. Geol. (2010) 270,*

202-212, doi:10.1016/j.margeo.2009.11.001 (H.L. Brackley, L. Carter, N.A. Trustrum, N.E. Blair, E.L. Leithold, E.A. Canuel, J. Johnston and K.R. Tate).

Enhanced supply of fossil organic carbon to the Okinawa trough since the last deglaciation. *Paleoceanography (2008) 23, PA2207, doi:10.1029/2007PA001440* (S.J. Kao, M.H. Dai, K.Y. Wei, N.E. Blair, S.C. Hsu and W.B. Lyons).

Early diagenetic cycling, incineration, and burial of sedimentary organic C in the central Gulf of Papua (Papua New Guinea). *JGR-Earth Surf. (2008) 113, F01S09, doi: 10.1029/2006JF000689 (*R.C. Aller, N.E. Blair, and G. J. Brunskill).

Geomorphologic controls on the age of particulate organic carbon from small mountainous and upland rivers. *Global Biogeochem. Cycles (2006), 20, GB3022, doi:10.1029/2005GB002677* (Leithold, E. L., N. E. Blair, and D. W. Perkey)

Carbon remineralization in the Amazon-Guianas tropical mobile mudbelt: a sedimentary incinerator. *Continent. Shelf Res.(2006) doi 10.1016/j.csr.2006.07.016* (R.C. Aller and N.E. Blair).

Sedimentation and carbon burial on the northern California continental shelf: the signatures of land-use change. *Continent. Shelf Res. (2005) 25:* 349-371 (E. Leithold, D.W. Perkey, N.E. Blair. T. Creamer).

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Early diagenetic remineralization of sedimentary organic C in the Gulf of Papua deltaic complex (Papua New Guinea): net loss of terrestrial C and diagenetic fractionation of C isotopes. *Geochim. Cosmochim. Acta (2004) 68:* 1815-1825 (R.C. Aller and N.E. Blair).

From bedrock to burial: the evolution of particulate organic carbon across coupled watershed-continental margin systems. *Mar. Chem. (2004) 92:* 141-156 (N.E. Blair, E.L. Leithold and R.C. Aller).

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The Persistence of Memory: The Fate of Ancient Sedimentary Organic Carbon in a Modern Sedimentary System. *Geochim. Cosmochim. Acta, (2003) 67:* 63-73 *(*Neal Blair, Elana Leithold, Shawn Ford, Kelly Peeler, Jennifer Holmes and David Perkey).

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Deposition of Bomb ^{14}C in Continental Slope Sediments of the Mid-Atlantic Bight: Assessing Organic Matter Sources and Burial Rates. *Deep Sea Research II (2002) 4:,* 4667-4686. *(*D.J. DeMaster, C.J. Thomas, N.E. Blair, W.L. Fornes, G. Plaia, and L.A. Levin).

Bt resistance management: The importance of alternate host use by Helicoverpa zea. *Proc. Nat. Acad. Sci.,(2002) 99:* 16581-16586 (F. Gould, N. Blair, M. Reid, T.L. Rennie, J. Lopez, and S. Micinski).

Watershed control on the carbon loading of marine sedimentary particles. *Geochim. Cosmochim. Acta (2001) 65*: 2231-2240 (E. Leithold and N. Blair).

The biogeochemistry of carbon in continental slope sediments: the North Carolina margin. *Proceedings of the Organism-Sediment Interactions Symposium, Oct., 1998, Belle Baruch Institute, S.C. (2000)* (N. Blair, L. Levin, D. DeMaster, G. Plaia, C. Martin, W. Fornes, C.Thomas and R. Pope).

Benthic fluxes and porewater concentration profiles of dissolved organic carbon in sediments from the North Carolina continental slope. *Geochim. Cosmochim. Acta (1999) 63:* 427-448 (M.J. Alperin, C.S. Martens, D.B. Albert, I.B. Suayah, L.K. Benninger, N.E. Blair, and J.A. Jahnke).

Macrofaunal processing of phytodetritus at two sites on the Carolina margin: in situ experiments using C-13-labeled diatoms. *Marine Ecology-Progress Series (1999) 182:* 37-54 (L.A. Levin, N.E. Blair, C.M. Martin, D.J. DeMaster, G. Plaia, C.J. Thomas).

Bioturbation and particle transport in Carolina slope sediments: A radiochemical approach. *Journal of Marine Research (1999) 57:* 335-355 (W.L. Fornes, D.J. DeMaster, L.A. Levin, N.E. Blair).

Rapid subduction of organic matter by maldanid polychaetes on the North Carolina slope. *J. Mar. Res. (1998) 55:* 1-17 (L.Levin, N. Blair, D. DeMaster, G. Plaia, W. Fornes, C. Martin and C. Thomas).

The $\delta^{13}C$ of biogenic methane in marine sediments: The influence of C_{org} deposition rate. *Chem. Geol. Isotope Geoscience (1998) 152:* 139-150 (N. Blair).

Methane emission from rice: Stable isotopes, diurnal variations, and CO_2 exchange. *Global Biogeochem. Cycles (1997) 11:* 15-27 (J.P. Chanton, G.J. Whiting, N.E. Blair, C.W. Lindau and P.K. Bollich).

Remineralization Rates, Recycling, and Storage of Carbon in Amazon Shelf sediments. *Cont. Shelf*

Res (1996) 16: 753-786 (R.C. Aller, N.E. Blair, Q. Xia, and P.D. Rude).

Sulfur Diagenesis and Burial on the Amazon Shelf: Major Control by Physical Sedimentation Processes. *Geo-Marine Lett (1996) 16:* 3-10 (R.C. Aller and N.E. Blair).

The short-term fate of fresh algal carbon in continental slope sediments. *Limnol. Oceanogr.(1996) 41:* 1208-1219 (N.E. Blair, L.A. Levin, D.J. DeMaster and G. Plaia).

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The Carbon Isotope Biogeochemistry of Methane Production in Anoxic Sediments: 1. Field Observations. In *The Biogeochemistry of Global Change: Radiative Trace Gases (1993)* R.S. Oremland (ed.), Chapman and Hall, NY, pp. 574-593 (N.E. Blair, S.E. Boehme and W.D. Carter, Jr.).

The Carbon Isotope Biogeochemistry of Methane Production in Anoxic Sediments: 2. A Laboratory Experiment. In *The Biogeochemistry of Global Change: Radiative Trace Gases (1993)* R.S. Oremland (ed.), Chapman and Hall, NY, pp. 594-605 (M.J. Alperin, N.E. Blair, D.B. Albert and T.M. Hoehler).

The Carbon Isotope Biogeochemistry of Acetate from a Methanogenic Marine Sediment. G*eochim. Cosmochim. Acta (1992) 56:* 1247-1258 (N.E. Blair and W.D. Carter, Jr.).

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Biogeochemical Processes in Amazon Shelf Sediments. *Oceanography (1991) 4:* 27-32 (R.C. Aller, J.Y. Aller, N.E. Blair, J.E. Mackin, P.D. Rude, I. Stupakoff, S. Patchineelam, S.E. Boehme and B. Knoppers).

Carbon Isotopic Composition of Methane in Florida Everglades Soils and Fractionation during its

Transport to the Troposphere. *Global Biogeochemical Cycles (1988) 2:* 245-252 (J.P. Chanton, G.G. Pauly, C.S. Martens, N.E. Blair, J.W.H. Dacey).

Intramolecular Carbon Isotopic Measurements of Acetate from a Coastal Marine Sediment. *Science (1987) 236*: 66-68 (N. E. Blair, C. S. Martens, D. J. Des Marais).

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Carbon Isotopic Composition of Individual, Low Molecular Weight Hydrocarbons and Monocarboxylic Acids from Murchison Meteorite. *Nature (1984) 307:* 252-254. (G. Yuen, N. Blair, D. Des Marais and S. Chang).

Stereoselective Hydrolysis of Leucine Oligomers. *Tetrahedron (1981) 37:* 27-29. (N. E. Blair, F. M. Dirbas and W. A. Bonner).

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The Radioracemization of amino acids by Ionizing Radiation. Geochemical and Cosmochemical Implications: *Origins of Life (1979) 9:* 279-290. (W. A. Bonner, N.E. Blair and R. M. Lemmon).

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Enantiomeric Phases in Analytical Gas Chromatography. *J. Chrom. (1979) 169:* 153-159. (W. A. Bonner and N. E. Blair).

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Abstracts and Conference/Symposia Presentations

Characterizing the response of riverine particulate organic carbon to storm events in the Upper Sangamon River Basin, Illinois, using elemental and stable isotope analyses (2024) *Goldschmidt Conference, Chicago IL, Aug 18-23, 2024* (DuRussel, K.L., Blair, N.E., Bauer, E, Wennerdahl, H, Haken, J.M., Rhoads, B.L. and Salas, C.)

Insights into Event-based Critical-Zone Connectivity in an Intensively Managed Agricultural Landscape in the U.S Midwest (2024) *EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-12261* (Saccardi, B., Druhan, J., Rhoads, B., Welp, L., Stumpf, A., Goodwell, A., Blair, N., Dere, A., Muste, M., Filley, T., Bauer, E., Haken, J., Keefer, L., and Kumar, P.)

Where does eroded soil C go and why do we care? (2022) *University of Miami Rosenstiel School of Marine, Atmospheric, and Earth Science* (September 12, 2022; Blair, N.)

The Evolution of the Fluvial Storm Pulse Particulate Organic Carbon Signal (2022) *Goldschmidt Conference, Honolulu* (July 13, 2022; Blair, N.) keynote speaker, https://doi.org/10.46427/gold2022.11120

Biomarker heatmaps to unravel the storm-induced source dynamics of fluvial particulate organic carbon: identification, transition, and conditional activation (2022) *Goldschmidt Conference, Honolulu* (July 13, 2022; Kim, J. and Blair, N.)

The Sequestration of Eroded Soil C – Local and Global Perspectives (2022) *Managing Carbon in the Midwest Workshop, Argonne Laboratory* (June 14, 2022; Blair, N.)

The source-to-sink evolution of particulate organic C: A close-up look at the terrestrial side of things (2022) *Ocean University of China, Qingdao* (April 28, 2022; Blair, N.)

Storm Pulses Controls on Fluvial Organic Carbon Transport in A Midwestern Agricultural Watershed (2021) *American Geophysical Union National Meeting, San Francisco (*Hou, T., Blair, N.E., and Filley, T.R.).

Metabolomics of Highly Dynamic Spatiotemporal Changes in Stream Dissolved Organic Carbon (2021) *American Geophysical Union National Meeting, San Francisco* (Guilvaiee, B.H., Blair, N.E., and Aristilde, L.)

Fate of Ayeyarwady (Irrawaddy) and Thanlwin (Salween) Rivers Sediments in the Andaman Sea and Bay of Bengal (2020) Ocean Sciences Meeting, San Diego, CA (Liu, P., Kuehl, S.A., Pierce, A.C., Williams, J.R., Blair, N.E., Harris, C.K., and Aung, D.W.).

Eroded soil C and where to find it: Lessons from the Upper Sangamon Basin, Il USA (2019) *Goldschmidt Conference, Barcelona* (Blair, N., Grimley, D., Anders, A. and Hayes, J.).

The anatomy of a storm pulse: An example from the Clear Creek, IA site of the Intensively Managed Landscape – Critical Zone Observatory (IML-CZO) (2018) *American Geophysical Union National Meeting, Washington, D.C.* (Blair, N., Ward, A., Bettis, A., Papanicolaou, T., and Wilson, C.G.).

Particulate organic carbon (POC) and particulate N behaviors in response to storm events in the Clear Creek, IA site of the Intensively Managed Landscape – Critical Zone Observatory (IML-CZO) (2017) *American Geophysical Union National Meeting, New Orleans* (Blair, N., Ward, A., Bettis, A., Papanicolaou, T., and Wilson, C.G.). Poster

Tracing Sources of Organic Matter in a Midwestern USA Reservoir using Online TMAH Thermochemolysis (2017) *American Geophysical Union National Meeting, New Orleans* (Hayes, J.M., and Blair, N.E.). Poster

Sediment dynamics and C-sequestration in the midwestern USA reservoir, Lake Decatur (2017) *Goldschmidt Conference, Paris* (Blair, N.E., Papanicolaou, T., Wilson, C.G., Leithold, E.L. and Keefer, L.)

Anthropogenic Reorganization of Critical Zone in Intensively Managed Landscapes (2016) *American Geophysical Union National Meeting, San Francisco* (Kumar, P., Anders, A., Bettis, E., Blair, N., Filley, T., Grimley, D., Le, P., Lin, H., Lin. Y-F., Keefer, D., Keefer, L., Muste, M., Packman, A., Pananicolaou, T., Rhoads, B., Richardson, M., Schnoebelen, D., Stompf, A., Ward, A., Wilson, C., Woo, D., Yan, Q. and Goodwell, A.).

Chemical characterization of the degradation of necromass from four Ascomycota fungi: Implications for soil organic carbon turnover and storage (2016) *American Geophysical Union National Meeting, San Francisco (*Bruner, V., Schreiner, K., Blair, N. and Egerton-Warburton, E.)

Coupled Metagenomic and Chemical Analyses of Degrading Fungal Necromass and Implications for Fungal contributions to Stable Soil Organic Carbon (2016) *American Geophysical Union National Meeting, San Francisco* (Egerton-Warburton, L., Schreiner, K., Morgan, B., Schultz, J., and Blair, N.)

Acetate as a potential methane precursor in the Antrim Shale: Relationship to environmental conditions and the microbial community (2016) *Geological Society of America Meeting* (D.S. Vinson, A. Martini, N. E. Blair).

Methane Generation in Lake Decatur, IL, a Midwestern U.S. Impoundment (2016) *Goldschmidt Conference, Yokohama, Japan* (N.E. Blair, E.M. Kirton, J. J. Williams, Y. Zeng, D. Vinson, L. Keefer , D. Schnoebelen, E.L. Leithold).

Tracking small mountainous river derived terrestrial organic carbon across the active margin marine environment (2015) *American Geophysical Union National Meeting, San Francisco* (L.B. Childress, N.E. Blair, A.R. Orpin).

Tracking Organic C from Uplands to the Deep-sea (2015) *U.S.-China EcoPartnership for Environmental Sustainability*, Purdue (N.E. Blair).

Connection of dissolved inorganic carbon to biogenic coalbed methane: Isotope evidence from Black Warrior Basin, Alabama (USA) (2015) *Geological Society of America Meeting, Baltimore* (D.S. Vinson, T.M. Quan, M.R. McIntyre-Redden, T.H. Darrah, N.E. Blair, J.C. Pashin).

Landscape Response to a Storm Event in the Clear Creek IA Watershed (2015) *Goldschmidt Conference, Prague* (N. Blair, A. Ward, J. Moravek, Y. Zeng, D. Cooperberg, A. Bettis, K. Prior, C. Davis).

Northwest Greenland Holocene temperatures inferred from organic archives of lakewater oxygen isotopes (2015) *Geological Society of America - North-Central – 49th Annual Meeting, Madison, WI* (G.E. Lasher, Y. Axford, J. McFarlin, N. E. Blair, M.A. Kelly, E.C. Osterberg, P. Kotechi, L. Farnsworth).

Coupled metagenomic and chemical analyses of degrading fungal necromass and implications for microbial contributions to soil organic matter (2014) *Soil Metagenomics Symposium (Oct 1-2, 2014) St. Charles, IL* (L.M. Egerton-Warburton, B.S.T. Morgan, J. Schultz, K.M. Schreiner, N.E. Blair).

Integrating Genomic and Chemical Knowledge for an Improved Understanding of Soil Carbon Dynamics (2014) *American Geophysical Union National Meeting, S.F.* (K.M. Schreiner, B.S.T. Morgan, J. Schultz, N.W. Blair, L. Egerton-Warburton).

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

The degradation chemistry of fungal necromass and its potential contributions to long-lived soil carbon (2014) *Goldschmidt Conference, Sacramento* (K. Schreiner, N. Blair and L. Egerton-Warburton).

Coal biodegradation pathways: Evidence from $\delta^{13}C$ of acetate (2014) *Goldschmidt Conference, Sacramento* (D. Akob, D. Vinson, D. Dunlap, J. McIntosh, W. Orem and N. Blair (poster)).

$\delta^{13}C$ of acetate in Powder River Basin coal bed waters: New application to methanogenic pathways in biogenic gas systems (2014) *Goldschmidt Conference, Sacramento* (D. Vinson, N. Blair and J. McIntosh).

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

The burial of organic carbon over the last 10 kyr by the Waipaoa River, New Zealand sedimentary system (2013) *American Geophysical Union National Meeting, S.F.* (N.E. Blair, Childress, L.B., Fournillier, K., Leithold E.L.).

The contribution of fungal necromass to soil organic matter storage (2013) *American Geophysical Union National Meeting, S.F.* (K.M. Schreiner, N.E. Blair, A. Buiser, L. Egerton-Warburton).

Re-assessing H and C Isotope Signatures of Biogenic Methane in Coalbeds and Shales: Metabolic Pathways and Alternative Influences (2013) *Geological Society of America National Meeting, Denver* (D.S. Vinson, J. C. McIntosh, N.E. Blair, A.M. Martini).

Long-term records of landscape dynamics preserved in marine and lacustrine sedimentary carbon (2013) *Geological Society of America National Meeting, Denver* (L. Leithold, J. Shinbaugh, N. Blair).

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

Contribution of fungal macromolecules to soil carbon sequestration (2013) *International Union of Soil Sciences Global Soil C Conference, Madison WI* (W. Levinson, K. Schreiner, K. Fournillier, N. Blair and L. Egerton-Warburton).

Carbon isotope modeling of methanogenic coal biodegradation: Metabolic pathways, mass balance, and the role of sulfate reduction in the Powder River Basin, USA (2012) *Geological Society of America National Meeting, Charlotte* (D.S. Vinson, J.C. McIntosh, D.J. Ritter, N.E. Blair, A.M. Martini).

Improved carbon isotope modeling of biogenic coalbed methane systems: The nature of initial CO_2 (2012) *Goldschmidt Conference, Montreal* (D.S. Vinson, J.C. McIntosh, D.J. Ritter, N.E. Blair, A.M. Martini).

The benthic processing of terrestrial organic matter on river-dominated margins (2012) *Ocean Carbon and Biogeochemistry workshop, Woods Hole, MA* (N.E. Blair, E.L. Leithold, R.C. Aller).

A conceptual watershed model describing the riverine export of particulate organic radiocarbon (2012) *Radiocarbon Conference, Paris* (N.E. Blair, L.B. Childress, E.L. Leithold).

The role of watershed storage on exported riverine organic carbon signatures (2011) *International Symposium on Soil Organic Matter, Leuven, Belgium* (N.E. Blair, E.L. Leithold, L. Childress, and K. Fournillier).

Global patterns of the fate of terrestrial organic carbon in the marine environment (2011) *Geological Society of America National Meeting, Minneapolis* (N.E. Blair, R.C. Aller, and E.L. Leithold).

Watershed storage and riverine particulate organic radiocarbon (2011) *American Geophysical Union National Meeting, S.F.* (N.E. Blair and Leithold E.L.).

The role of watershed storage on exported riverine organic carbon signatures (2011) *AGU Chapman Conference on S2S systems, Oxnard CA* (N. Blair, E. Leithold, R. Aller).

Radiocarbon Analyses and the Century of the Environment (2010) "*Emerging Capabilities in Compound-Specific Radiocarbon Analysis in the Oceans"* workshop, Woods Hole, MA (N. Blair)

Long-term controls on the composition of particulate carbon buried offshore from the Waipaoa River, North Island, New Zealand (2010) *Annual AGU Meeting, San Francisco* (E. Leithold, N. Blair, L. Childress, B. Brulet)

Tracing Organic Carbon from the Terrestrial to Marine Environment via Coupled Stable Carbon Isotope and Lignin Analyses (2010) *Annual AGU Meeting, San Francisco* (L. Childress, N. Blair, L. Leithold), poster.

Vegetation Dynamics in the Watershed of Salt Pond, Falmouth, Massachusetts in the Aftermath of a Large Paleostorm and Subsequent Wildfire Inferred from Lignin Oxidation Products (2010) *Annual AGU Meeting, San Francisco* (M. Gomes, N. Blair, J. Donnelly, A. Hawkes)

Picking apart the organic geochemical stratigraphic record on continental margins – An approach to deciphering the signals of terrestrial environmental change (2010) *Annual GSA Meeting, Denver* (E.L. Leithold, N.E. Blair, B. Brulet, L. Childress, K. Almquist, C. Hunt)

Resolving organic carbon of differing diagenetic/catagenetic states in riverine and marine sediments (2010) *Goldschmidt Conference, Knoxville* (N.E. Blair, K. Fournillier, E.L. Leithold, L.B. Childress).

Carbon and nitrogen stable isotopes as proxies for Late Pleistocene to Holocene environmental change in the Waipaoa Sedimentary System, New Zealand (2010) *Goldschmidt Conference, Knoxville* (L.B. Childress, E.L. Leithold, N.E. Blair, B. R. Brulet).

Long-term controls on the composition of particulate carbon buried offshore from the Waipaoa River, North Island, New Zealand (2009) *AGU national meeting, San Francisco* (E. L. Leithold, N. E. Blair, L. B. Childress, B. R. Brulet).

Raman spectroscopy of carbonaceous material in PETM sediments from the Bighorn Basin, Wyoming (2009) *AGU national meeting, San Francisco* (A. A. Baczynski, F. A. McInerney, S. D. Jacobsen, N. E. Blair, S.-M. Thomas, M. J. Kraus)

Identifying sediment sources and delivery mechanisms using background level polycyclic aromatic hydrocarbons in the Waiapu River watershed, NZ (2009) *AGU national meeting, San Francisco* (C.E. Thompson, E.G. Nichols, G. Johnson, N.E. Blair, E.L. Leithold, A.S. Palmer, W.T. Baisden).

Deciphering the biogeochemical signals of Holocene environmental change preserved in sediment fractions on the Waipaoa margin, New Zealand. (2009) *Margins S2S Workshop, Gisborne, New Zealand* (E. Leithold, L. Childress, B. Brulet, and N. Blair).

The next generation methods of tracking organic carbon from source to sink: Pyrolysis-GCMS and –FTIR. (2009) *Margins S2S Workshop, Gisborne, New Zealand* (K. Fournillier, N. Blair and E. Leithold).

The Source to Sink Evolution of Particulate Organic Carbon in the Waipaoa Sedimentary System (2009) *Margins S2S Workshop, Gisborne, New Zealand* (N. Blair, E. Leithold, B. Brulet, L. Childress, E. Canuel, H. Brackley, N. Trustrum, M. Page, L. Carter).

Use of carbon and nitrogen stable isotopes to study Late Pleistocene to Holocene environmental change in the Waipaoa Sedimentary System, New Zealand. (2008) *AGU national meeting, San Francisco* (L. Childress, L. Leithold, N. Blair, and B. Brulet).

Isotopic Signatures of Particulate Organic Matter Sources, Transport Pathways and Diagenesis on the Waiapu Margin, New Zealand. (2008) *AGU national meeting, San Francisco* (C. Thompson, N. Blair and L. Leithold).

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

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

Kerogen reloaded: Following Organic Carbon's Spiral through Time (2004) *Organic Geochemistry Gordon Conference* (N. Blair, E. Leithold, D. Perkey, K. Peeler, S. Ford, J. Holmes).
Carbon remineralization in the Amazon - Guianas mobile mudbelt: a sedimentary incinerator (2004) *Friday Harbor Symposium for Richard Sternberg* (R.C. Aller and N.E. Blair).

The organic memory of sedimentary systems as an indicator of the past lives of particles (2004) *National Geological Society of America meeting* (E. Leithold and N. Blair).

Impact of land-use change on carbon burial on the Northern California shelf (2003) *National Geological Society of America meeting* (E. Leithold, D.W. Perkey, N.E. Blair).

Riverine discharge of black carbon from the US (2003) *National Geological Society of America meeting* (S. Mitra, T. Lorenson, R. Rosenbauer, K. Kvenvolden, P. Swarzenski, A. Mannino, E. Leithold, N. Blair).

From bedrock to burial: the evolution of particulate organic carbon across coupled watershed-continental margin systems (2003) *Symposium on New Approaches in Marine Organic Biogeochemistry, Friday Harbor* (N.E.Blair, E. Leithold, R.C. Aller).

Does Riverine OC From the Pacific Rim Have a Distinctive Flavor? (2002) *Western Pacific AGU, Wellington, NZ* (N.E. Blair, E.L. Leithold, J. Holmes, D. Perkey,K. Peeler, S. Ford).

Source to sink transformations of organic matter in a rapidly uplifting ocean margin (2001) *ASLO Aquatic Sciences meeting, Albuquerque, NM* (N.E. Blair, E. Leithold, J. Holmes, D. Perkey, K. Peeler, S. Ford).

A watershed control on the carbon loading of marine sedimentary particles? (2001) *ASLO Aquatic Sciences meeting, Albuquerque, NM* (E.L. Leithold and N.E. Blair).

Deposition of bomb C-14 in continental slope sediments: use of radiocarbon in understanding benthic food web dynamics (2001) *ASLO Aquatic Sciences meeting, Albuquerque, NM* (D.J. DeMaster, N.E. Blair, C.R. Smith, W.L. Fornes, C.J. Thomas, and G. Plaia).

A benthic carbon budget for the continental slope off Cape Hatteras, N.C., USA (2001) *ASLO Aquatic Sciences meeting, Albuquerque, NM* (C.J. Thomas, N.E. Blair, D.J. DeMaster, R.A. Jahnke, C.S. Martens, L.J. Pietrafesa)

Factors influencing the transport of kerogen in the Eel River sedimentary system (2001) *221st ACS National Meeting, San Diego, CA* (N.E. Blair, E. Leithold, J. Holmes, D. Perkey, K. Peeler, S. Ford).

Fate of phytodetritus in continental slope sediments (2001) *221st ACS National Meeting, San Diego, CA* (N.E. Blair, L. Levin, D. DeMaster, G. Plaia, C. Martin, C.J. Thomas, W. Fornes.

Organic carbon pathways and burial rates in North Carolina continental slope sediments (1998) *Ocean Sciences Meeting, San Diego, CA* (D.J. DeMaster, R.H. Pope, W.L. Fornes, G. Plaia, N.E. Blair).

Diagenetic processes in rapidly accumulating slope sediments (1998) *Ocean Sciences Meeting, San Diego, CA* (N.E. Blair, C.J. Thomas, D.J. DeMaster and R.H. Pope).

A comparison of organic matter transport and decay in sediments from coastal and slope sediments using ^{13}C labeled diatoms (1998) *Ocean Sciences Meeting, San Diego, CA* (C.J. Thomas and N.E. Blair).

Event sedimentation and carbon burial on the Northern California continental margin (1998) *Ocean Sciences Meeting, San Diego, CA* (E. Leithold and N. Blair).

Observations of Organic Matter Transport in Marine Sediments and Coincident Geochemical Alterations (1998) *Organism-Sediment Interactions Symposium, Oct., Belle Baruch Institute, S.C.* (C.J. Thomas and N.E. Blair).

The biogeochemistry of carbon in continental slope sediments: the North Carolina margin (1998) *Organism-Sediment Interactions Symposium, Belle Baruch Institute, S.C.* (N. Blair, L. Levin, D. DeMaster, G. Plaia, C. Martin, W. Fornes, C. Thomas and R. Pope).

Macrofaunal processing of phytodetritus at two sites on the NC slope: An *in situ*, time series approach. (1997) *Ocean Sciences Meeting, Santa Fe N.M.* (L. Levin, C. Martin, N. Blair, D. DeMaster, G. Plaia, & C. Thomas).

Who eats how, when and where on the continental margin: C-13 tracer studies of phytodetritus

fates (1997) *25th Annual Benthic Ecology Meeting, Portland, ME* (L. Levin, N.Blair, D. DeMaster, G. Plaia, C. Martin, C. Thomas and W. Fornes).

Extremely early diagenesis of phytodetritus in slope sediments (1997) *Fall National GSA Meeting, Salt Lake City, UT* (N. Blair, L. Levin, D. DeMaster, C.J. Thomas, W. Fornes, and G. Plaia).

Carbon Transport and Benthic Respiration in Slope Sediments off Cape Hatteras, NC: A Comparison of Field and Laboratory Experiments (1995) *Marine Benthic Ecology Meeting, Rutgers Univ., New Brunswick, N.J.* (G. Plaia, N. Blair, L. Levin, D. DeMaster and C. Thomas).

Maldanid Polychaetes as Vehicles for Rapid Subduction of Phytodetritus on the NC Slope (1995) *Marine Benthic Ecology Meeting, Rutgers Univ., New Brunswick, N.J.* (L. Levin, N. Blair, G. Plaia, D. DeMaster and C. Martin).

The $\delta^{13}C$ of Biogenic Methane in Marine Sediments: The Influence of C_{org} Deposition Rate (1995) *GSA Abstracts 27*, Oct.

The Short-term Fate of Fresh Algal Carbon in Continental Slope Sediments (1994) *ASLO Ocean Sciences Meeting, San Diego* (N.E. Blair, G.R. Plaia, D.J. DeMaster, L.A. Levin).

C_{org} Remineralization in Amazon Shelf Sediments (1994) *ASLO Ocean Sciences Meeting, San Diego* (R.C. Aller, N.E. Blair, Q. Xia, P.D. Rude).

Respiration Rates and Dissolved Organic Fluxes off North Carolina (1994) *ASLO Ocean Sciences Meeting, San Diego* (C.S. Martens, M.J. Alperin, D.B. Albert, N.E. Blair).

Stable Isotopic Tracing of Methane Emission From Rice (1994) *Third Symposium on Biogeochemistry of Wetlands, Orlando FLA* (J.P. Chanton, G.J. Whiting, C.W. Lindau, P.K. Bollich and N.E. Blair).

C Transport Within the Slope Seabed: A Tale of Two Sites (1994) *Fall AGU Meeting, San Francisco* (N.E. Blair, G.R. Plaia, D.J. DeMaster, L.A. Levin).

The Fate of Organic Matter in NC Continental Slope Sediments: a Radiochemical Approach (1994) *Fall AGU Meeting, San Francisco* (D.J. DeMaster, W.L. Fornes, R.H. Pope, N.E. Blair and L.A. Levin).

Dissolved Organic Carbon in Sediments from the North Carolina Continental Slope (1994) *Fall AGU Meeting, San Francisco* (M.J. Alperin, C.S. Martens, I.B. Suayah, L.K. Benninger, N.E. Blair, R. Jahnke).

The Carbon Isotope Biogeochemistry of Freshwater Methanogenic Sediments (1992) *203rd National Meeting of the American Chemical Society, San Francisco* (N.E. Blair, C.A. Kelley and C.S. Martens).

Methane and Sediment Dynamics on the Amazon Shelf (1992) *Fall AGU National Meeting, San Francisco* (N.E. Blair, J. Gunn and R.C. Aller).

Diagenetic Isotope Effects in an Anoxic Marine Sediment (1991) *201st National American Chemical Society Meeting, Atlanta* (N.E. Blair, S.E. Boehme and W.D. Carter, Jr.).

A Carbon Isotope Budget for an Anoxic Marine Sediment (1991) *201st National A.C.S. Meeting, Atlanta* (S.E. Boehme and N.E. Blair).

The Carbon Isotope Biogeochemistry of Methane Production in Anoxic Sediments (1991) *10th International Symposium on Environmental Biogeochemistry, San Francisco* (N.E. Blair, S.E. Boehme and W.D. Carter, Jr.)

Biogeochemical Controls on the Carbon Isotopic Composition of Methane Produced in Anoxic Marine Sediment (1991) *10th International Symposium on Environmental Biogeochemistry* (M.J. Alperin, N.E. Blair, D.B. Albert, and T.M. Hoehler).

The Effects of Biological Mounds on Biogeochemical Processes in Southeast U.S. Continental Slope Deposits (1990) *Benthic Ecology Meeting, Mobile* (R.H. Pope, T.R. Schaff, S.E. Boehme, L.A.Levin, N.E. Blair, and D.J. DeMaster).

Relationship between Infaunal Community Structure and Organic Carbon on the Carolina Continental Slope (1990) *Benthic Ecology Meeting, Mobile* (T. Schaff, L. Levin, N. Blair, S. Boehme, D.DeMaster and R. Pope).

The Production of Dissolved Inorganic Carbon and Methane in Amazon Shelf Sediments (1990) *Fall AGU Meeting, San Francisco* (N.E. Blair, S.E. Boehme, J.M. Gunn and H.P. Mendlovitz).

Spatial Variability in Biogeochemical Processes on the Southeast U.S. Continental Slope: Large Scale Heterogeneity (1989) *Spring AGU Meeting, Baltimore* (N.E. Blair, L.A. Levin, D.J. DeMaster, S.E. Boehme, S.L. Harden and T.R. Schaff).

Spatial Variability in Biogeochemical Processes on the Southeast U.S. Continental Slope: The Effects of Biological Mounds (1989) *Spring AGU Meeting*, Baltimore (D.J. DeMaster, L.A. Levin, N.E. Blair, S.L. Harden, S.E. Boehme, and R.N. Pope).

Biogeochemical Processes Dominating Upper Slope Sediments along a 36º 20' N Transect off North Carolina, USA. (1989) *Spring AGU Meeting, Baltimore* (C.S. Martens, J.P. Chanton, J.V. Klump, L.K. Benninger, P.M. Crill, R.I. Haddad, D.B. Albert, C.A. Kelley, M.J. Alperin, J.D. Willey, N.E. Blair).

Carbon Isotope Biogeochemistry of Salt Marshes (1988) *The Third Chemical Congress of North America, Toronto* (N. Blair, J. Gower, J. Chanton).

Seasonal Variation in ΣCO_2 $\delta^{13}C$ Values from an Anoxic Coastal Sediment (1987) *American Chemical Society National Meeting, Denver* (N. E. Blair, S. E. Boehme and J. P. Chanton).

The Biogeochemical Processes Controlling the Carbon Isotopic Composition of Methane from Coastal Environment (1987) *American Chemical Society National Meeting, Denver* (N. Blair, J. Gower and S. Boehme).

The Carbon Isotope Biogeochemistry of Methane from Coastal Sediments (1987) *Geological Society of America Fall Meeting, Phoenix* (N. E. Blair, S. E. Boehme, W. D. Carter, J.G. Gower, W. J. Showers, J. P. Chanton, C. S. Martens).

Biogeochemical Control of Coastal Sediment Pore Water ΣCO_2 Carbon Isotopic Compositions (1986) *EOS, v. 67, p. 1058* (S. Boehme and N. Blair).

Control of the Carbon Isotopic Composition of Sedimentary Biogenic Methane (1985) *8th International Estuarine Research Conference* (N. Blair, D. Des Marais and C. Martens).

Seasonal $\delta^{13}C$ Variations of Methane from an Anoxic Marine Sediment (1985) *NASA Symposium on Biospheric Research* (N. Blair, D. Des Marais and C. Martens).

Seasonal $\delta^{13}C$ Variations of Methane from an Anoxic Marine Sediment (1984) *EOS, v. 65, p. 960.* (N. Blair, C. S. Martens and D. Des Marais).

Carbon Isotopic Fractionation in Microbial Intermediary Metabolism (1983) *6th International Symposium on Environmental Biogeochemistry* (N. Blair and D. Des Marais).

Carbon Isotopic Composition of Individual, Low Molecular Weight Hydrocarbons and Monocarboxylic Acids from Murchison Meteorite (1983) *14th Lunar and Planetary Science Conference* (G. Yuen, N. Blair, D. Des Marais and S.Chang).

Funded Research

"Network Cluster CINET: Critical Interface Network in Intensively Managed Landscapes" 9/1/20-8/31/25, NSF, U. Illinois Urbana Champaign, $413,957 (N. Blair)

"Critical Zone Observatory for Intensively Managed Landscapes" 12/1/14 - 11/30/21, NSF/U. Illinois Urbana Champaign, $440,893 (N. Blair and A. Jacobson).

"A Potential Fungal Contribution to the Selective Preservation of Long-chain Hydrocarbon Functionality in Soils and Sediments" 9/1/12 – 8/31/16, ACS-PRF, $100,000 (N. Blair).

"The Subduction Margin Carbon Cycle: A Preliminary Assessment of the Distribution Patterns of Multicycle Carbon" 3/1/12-5/31/16, NSF, $264,535 (N. Blair).

"Pathway-specific isotopic approach to assess biostimulation in coalbeds" 1/1/13-12/31/13, ISEN, $25,923 (N. Blair).

"Tracking multicycle carbon in active margin environments" 8/1/12-7/31/13, NSF, $30,000 (N. Blair).

"Fungal Macromolecular Products as Potential Novel Biofuel Source" 8/1/11-7/31/12, ISEN Booster Grant, $42,800 (N. Blair, P.I., L. Egerton-Warburton, T. Wilson).

"Fungal macromolecules as facilitators of C-sequestration and electron transfer" 6/1/10-5/31/11, ISEN Booster Grant, $32K (Y. Wang, N. Blair, L. Egerton-Warburton, T. Wilson).

"Preliminary Studies of the Biodegradation of Paper Products in the Marine Environment: Aerobic Biodegradability in Marine Sediment," 7/09-12/10, Pactiv, $21,579 (N. Blair).

"Designing a Conductivity sensor for salinity for EARTH 106," 10/08-12/08, WCAS Course Enhancement Grant, $500 (N. Blair)

"Probing the Carbon Cycle: Forensic Biogeochemistry in the Environmental Laboratory," 10/08-8/09, Murphy Society Grant Proposal, $28,500 (N. Blair and J.-F. Gaillard)

"Source to Sink Generation of Biogeochemical Stratigraphic Signals Across the Waipaoa Margin, New Zealand," 4/07-3/11, NSF, $499,997 (E. Leithold and N. Blair).

"Acquisition of a multi-use isotope ratio mass spectrometry system: upgrade of isotope biogeochemistry laboratory," 8/05-7/06, NSF, $211,126 (N. Blair, L. Leithold, E. Nichols, J. Fountain, M. Schweitzer and D. DeMaster.

"Applications of ^{13}C-tracer studies and stable isotope geochemistry to determine rhizosphere alteration of PAH bioavailability in contaminated geomedia," 9/03-9/06, NSF/BES, $434,000 (E. Nichols, PI;, N.Blair and B. Goldfarb, collaborators).

“Age distribution of POC discharged from small mountainous rivers-the influence of sediment yield and soil residence time,” 10/02-9/06, NSF, $480,000 (with E. Leithold, P.I.)

“Organic Carbon Loading on Marine Sedimentary Particles as an Indicator of River Basin Weathering and Transport Regimes,” 1/99-12/02, NSF, $267,500 (with E. Leithold, P.I.).

“Organic Carbon Burial in Marine Sediments: Processes Controlling the Organic Carbon Load on Mineral Surfaces in a Coupled River/Continental Margin System,” 5/98-8/00, ACS-PRF, $60,000 (with E. Leithold, P.I.)

"Deposition and Fate of Modern Organic Carbon in Shelf/Upper Slope Sediments near Cape Hatteras, North Carolina," 8/1/95-1/31/99, DOE, $330,000 (with D. DeMaster).

"The Fate of Algal Carbon in Continental Slope Sediments: A Multitracer Approach," 1/94-12/95, NOAA-NURP, $39,682 + submersible time (with D.DeMaster and L. Levin).

"The Fate of Algal Carbon in Continental Slope Sediments: A Multitracer Approach," 10/15/93-10/14/97, NSF, $668,816 (with D. DeMaster and L. Levin).

"Intramolecular Carbon Isotopic Compositions of Amino Acids," 6/1/92-8/31/94, ACS-PRF, $43,000 (with W. Savidge).

"Spatial Heterogeneity of Biogeochemical Processes in Continental Slope Sediments," 1/1/91-12/31/91, NOAA-NURP, $50,050 + submersible time (with L.Levin, PI, and D.DeMaster).

"The Carbon Isotope Biogeochemistry of Methane from Anoxic Sediments," 7/1/89-6/30/93, NASA, $472,000.

"Photographic Survey of the Sea Floor at the Proposed Mobil Drilling Site off North Carolina,1000m," 3/1/89-2/28/90, N.C. Dept. of Administration, $4,125,(with L. Levin, PI, and D. DeMaster).

Diagenetic Processes and Authigenic Mineral Formation in Amazon Shelf Sediments,"1/1/89-9/30/94, NSF $89,000 (subcontract with R. Aller (PI) SUNY).

"Spatial and Temporal Heterogeneity of Biogeochemical Processes in Continental Slope Sediments," 9/8/88-10/15/89, NOAA-NURP, submersible time worth $194,968, (with L. Levin and D. DeMaster).

"Seasonal Variations in Isotopic Signatures of Methane Produced in Organic-Rich Environments," 10/1/85 - 6/30/89, NASA, $262,132 (with C.S. Martens, PI; J. Chanton and L. K. Benninger, UNC - Chapel Hill).

"Seasonal $\delta^{13}C$ Variations of Biogenic Methane: Biogeochemical Controls," 10/11/85-6/30/89, NASA, $402,803.

Computerized Marine Science Data System," 3/1/86 - 2/28/87, Marine Science Council, $5,000, (with J. Morrison).

"Natural Abundance $\delta^{13}C$ Measurements of Sediment Interstitial Water Acetate," 3/1/86-8/31/88, ACS - Petroleum Research Fund, $18,000.

Construction of Gas Chromatography Combustion System," 4/1/85 -4/1/86, U.N.C. Marine Science Council, $3,500.

"Construction of a Gas Chromatography Combustion System," 5/1/85- 4/30/86, N.C. Board of Science and Technology, $3,481.

"Carbon Isotopic Measurements of Methane and Its Precursors from Anoxic Sediments," 1/1/85 -12/31/85. University Research Committee, $3,500.

External Service

CUASHI representative (2015-present)
Evanston Environmental Justice Task Force (2015-16)
Intensively Managed Landscape- Critical Zone Committee Executive Committee (2014-19)
Cross-CZO Biogeochemistry Workshop (10/15)
U.S.-China EcoPartnership for Environmental Sustainability Meeting Planning Committee (10/15)
NSF GeoPrisms Program Planning Workshop for New Zealand Focus Area (4/13)
NSF GeoPrisms Program Planning Workshop for Cascadia Focus Area (4/12)
NSF GeoPrisms Program Planning Workshop for Alaska Focus Area (9/11)
NSF GeoPrisms Program Planning Workshop (1/11)
NSF Margins Successor Program Workshop (2/10)
Evanston Climate Adaptation Plan Task Force (formerly Trees and Water; 2010-present)
Chapman Conference proposal steering committee (6/09-1/11)
NASA Astrobiology Proposal Review Panel (1/09)
Citizens for a Greener Evanston (CGE) Steering Committee (2008-2010)
Trees, Native Plants and Water Task Force (CGE) co-chair (2008-2010)
National Ocean Sciences Accelerator Mass Spectrometry Advisory Board (10/05-06, chair 2007)
RioMar Planning Workshops (2001, raconteur for 2004)
Biocomplexity Workshop on Animal-Sediment Interactions (2002, invited speaker)
Carbon Erosion Workshop (2002), Palmerston North, New Zealand (invited international reviewer and speaker)
NSF MARGINS Source to Sink planning workshops (1999 – invited speaker, 2000, 2003, 2006)
Offshore Drilling Safety discussion group for NC Outer Continental Shelf office (1999)
Joint NC DENR/U.S. MMS workshop on Manteo offshore drilling (1998; speaker, planning committee)
NC Government Operations Legislative Committee (1997; provided overview of Cape Hatteras region and offshore drilling)
NC Department of Coastal Management – (1997; consulted regarding proposed offshore drilling)

Consortium for Oceanographic Research and Education Bahama Workshop for Journalists (1996; provided lectures on Carbon Biogeochemical Cycles)
DOE Ocean Margins Program workshops (1994, 1995, 1997)
NOAA-National Undersea Research Program (1993; provided overview of C-cycling on the N.C. slope)
National Academy of Sciences Committee on Oceanic Carbon (1993; provided overview of C-cycling in deltaic and slope sediments)
DOE (1992; consulted concerning Cape Hatteras slope)

Research Cruises

R/V Kilo Moana (2004, Waiapu margin, NZ)
R/V Sproul (1999, Eel margin, N. CA.)
R/V Seward Johnson/DSV Johnson SeaLink II (1996, NC slope, *chief dive scientist*)
R/V Seward Johnson (1996, NC slope)
R/V Edwin Link/DSV Johnson SeaLink I (3 cruises, 1994-95, NC slope, *chief scientist*)
R/V Cape Hatteras (1993, NC slope)
R/V Edwin Link/DSV Johnson SeaLink II (1989, NC slope)
R/V Iselin (3 cruises 1989-90, Amazon shelf)
R/V Cape Hatteras (1989, NC slope)
R/V Seaward Explorer/DSV Pisces II (1988, NC slope)
R/V Cape Hatteras (1987, NC slope)