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Research Interests

Major marine biogeochemical cycles, as they operate present and past, using natural variations in isotopic ratio (e.g. $^{15}\text{N}/^{14}\text{N}$, $^{13}\text{C}/^{12}\text{C}$, and $^{18}\text{O}/^{16}\text{O}$). Focus is on the global N cycle and its interactions with climate change, atmospheric CO_2

concentration, and coastal eutrophication.

Current and Recent Research

- Testing Southern Ocean control of atmospheric CO_2 using diatom-based paleo-proxies, NSF-OPP, \$271,100, Feb 1 2003 to Jan 31 2007.
- Collaborative Research: Decadal to orbital links between climate, productivity, and denitrification on the Peru Margin; Do models of persistent El Niño or La Niña apply? Proposal Renewal, NSF – ESH, \$354,580, July 15 2003 to June 30 2007.
- Ecophysiological and molecular control of nitrogen cycling in Lake Kinneret., US-Israel Binational Science Foundation, \$40,000, August 1 2003 to July 31 2007.
- Natural isotopic tracers for anthropogenic nitrogen in Long Island Sound, EPA \$125,000, July 12 2004 to March 31 2007.
- Assessing coastal benthic denitrification using high precision water column N_2/Ar , NSF \$411,601, July 01 2006 to June 30 2009.

Recent Publications

- Agnihotri, R, M. A. Altabet, T.D. Herbert, and J.E. Tierney, 2008. Ultra high-resolution paleoceanography of the Peru margin during the last 2 two millennia. *Geochem., Geophys., Geosys.*, in press.
- Zhang, L., and M.A. Altabet, 2008. Amino group-specific natural abundance N isotope ratio analysis in amino acids. *Rapid Commun. Mass Sp.*, in press.
- Zhang, L. and M.A. Altabet (2008) Intramolecular natural abundance N isotope ratio analysis in amino acids. *Rapid Commun. Mass Sp.* 22; 559-566, DOI: 10.1002/rcm.3385.
- Anisfeld, S.C., R.T. Barnes, M.A. Altabet, and T. Wu, 2007. Isotopic Apportionment of Atmospheric and Sewage Nitrogen Sources in Two Connecticut Rivers. *Environ. Sci. Technol.* 41: 6363-6369
- Leichter, J.J., A. Paytan, S. Wankel, K. Hanson, S. Miller, and M.A. Altabet, 2007. Nitrogen and oxygen isotopic signatures of subsurface nitrate: Evidence of deep water nutrient sources to the Florida Keys reef tract. *Limnol. Oceanogr.*, in press.
- Altabet, M.A., 2007. Constraints on oceanic N balance/imbalance from sedimentary ^{15}N records. *Biogeosciences*, 4, 74-86, <http://direct.sref.org/1726-4189/bg/2007-4-75>.
- Groffman, P.M., M.A. Altabet, J.K. Böhlke, K. Butterbach-Bahl, M.B. David, M.K. Firestone, A.E. Giblin, T.M. Kana, L.P. Nielsen, and M.A. Voytek, 2006. Methods for measuring denitrification: Diverse approaches to a difficult problem. *Ecol. Appl.*, 16(6), 2091–2122.
- Çoban-Yıldız, Y., M.A. Altabet, A. Yılmaz, and S. Tugrul, 2006. Carbon and nitrogen isotopic ratios of suspended particulate organic matter (SPOM) in the Black Sea water column. *Deep Sea Res. II*, 53, 1875-1892, doi:10.1016/j.dsr2.2006.03.021.
- Agnihotri, R., M.A. Altabet, and T.D. Herbert, 2006. Influence of marine denitrification on atmospheric N_2O variability during the Holocene. *Geophys. Res. Lett.* 33, L13704, <http://dx.doi.org/10.1029/2006GL025864>.
- Altabet, M.A., 2005. Isotopic tracers of the marine nitrogen cycle, In: *Marine Organic Matter: Chemical and Biological Markers*, edited by J. Volkman, vol. 2 of "The Handbook of Environmental Chemistry," Editor-in-Chief: O. Hutzinger, pp. 251-293, http://dx.doi.org/10.1007/698_2_008.
- Liu, Z., M.A. Altabet, and T.D. Herbert, 2005. Glacial-interglacial modulation of eastern tropical North Pacific denitrification over last 1.8-Myr. *Geophys. Res. Lett.*, 32, L23607, <http://dx.doi.org/10.1029/2005GL024439>.