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EDUCATIONAL QUALIFICATIONS:

1990- Ph.D in Geological Oceanography, Massachusetts Institute of Technology/Woods Hole Oceanographic Institution Joint Program in Oceanography and Oceanographic Engineering.
1984- M.S. in Marine Sciences, University of North Carolina-Chapel Hill.
1980- B.A., *cum laude*, with High Honors in Environmental Science, Wesleyan University, Middletown, CT

PROFESSIONAL APPOINTMENTS:

2006-present Associate Professor, Institute of Marine and Coastal Sciences, Rutgers University
2001- 2006 Research Associate Professor, IMCS, Rutgers University
2000-2001 Senior Lecturer, University of Auckland
1998-2000 Lecturer, University of Auckland
1997- 98 Senior Research Scientist, Australian Geological Survey Organisation and Antarctic Cooperative Research Centre
1993-97 Research Scientist, Australian Geological Survey Organisation and Antarctic CRC
1992-93 Australian Research Council Post-Doctoral Fellow at the University of Tasmania
1990-91 University of Tasmania, Junior Research Fellow
1984-90 MIT/WHOI Graduate research assistant
1982-84 University of North Carolina, Chapel Hill graduate research and teaching assistant
1980-82 Choate Rosemary Hall, Science Faculty (chemistry)

SIGNIFICANT DISTINCTIONS / AWARDS:

2004 National Science Foundation (NSF) ADVANCE Fellows Award
1997 American Geophysical Union Editors' Citation for Excellence in Refereeing, *Paleoceanography*
1991 Australian Research Council Post-Doctoral Fellowship
1983 NSF Graduate Fellowship: Honorable Mention

PROFESSIONAL SOCIETIES:

American Geophysical Union
Geological Society of America
American Society of Limnology and Oceanography
Assistant editor *Paleoceanography* 2004- present

LABORATORY AND FIELD EXPERIENCE:

- Participation in 13 oceanographic research cruises: Chief scientist of jumbo piston coring cruise on R/V *Roger Revelle* March 2005. Shipboard scientist on five cruises involving piston and box coring, dredging, and single channel seismic profiling, two CTD cruises involving water column sampling, one involving sediment trap deployment and retrieval, three DSRV Alvin dive series. Four cruises have been in polar and subpolar waters.
- Designed and established a multipurpose laboratory for organic geochemistry and related fields.
- Analysis of light stable isotopes on dual inlet mass spectrometers fitted with automated preparation line for micro-carbonate sample analysis.
- Speciation of foraminiferal species for both total faunal assemblage and isotopic analysis.
- Analysis of the lipids: extraction, separation by column chromatography, and identification by gas chromatography, and gas chromatography/mass spectrometry.
- Determination of total organic carbon and total sedimentary carbonate (gasometric measurement).

RESEARCH SUMMARY STATEMENT

My general research area is paleoceanography. Within this broader field, I employ isotopic ($\delta^{13}\text{C}$, $\delta^{18}\text{O}$, and ^{14}C) and organic (biomarker, U^k_{37}) geochemical techniques to the questions of sea surface temperature and global circulation change. I have maintained a long-term focus on improving paleo-sea surface temperature estimates using biomarkers (U^k_{37}), in conjunction with foraminiferally based estimates ($\delta^{18}\text{O}$ and assemblages). My studies on deep water ventilation, employing isotopic tools (primarily radiocarbon) are elucidating Southern Ocean influence on carbon cycling during climate driven circulation changes in the past. These concordant studies investigate the interplay between ocean circulation and glacial/interglacial regimes. The unifying theme in my work is carbon cycling. My paleoclimate studies are complimented by work on sediment trap and coastal studies investigating sources, pathways, and sinks of both terrestrial and marine carbon in modern environments. Presently I am implementing work to further integrate my biomarker and isotopic studies. I am employing compound-specific stable and radiocarbon isotopic studies to improve the assessment of carbon partitioning (marine, terrestrial, organic inorganic) and the influences of climate change on carbon pathways over multi-million, millennial and decadal time scales.

RESEARCH PUBLICATIONS

Refereed Articles: (*denotes corresponding author, [‡]denotes graduate student [†]denotes post –doc [‡]denotes undergraduate student)

2009. **Sikes, E. L.**, W. R. Howard, C.R. Samson [‡], T. Mahan [†], Robertson, L., and J.K. Volkman, Southern Ocean seasonal temperature and Subtropical Front movement on the South Tasman Rise in the Late Quaternary *Paleoceanography*, 24, PA2201, doi:10.1029/2008PA001659
2009. **Sikes E. L.**, M. E. Uhle, S. D Nodder and M.E. Howard, Sources of organic matter in a coastal marine environment: Evidence from n-alkanes and their $\delta^{13}\text{C}$ distributions in the Hauraki Gulf, New Zealand *Marine Chemistry*, 113, 149-163.
2008. **Sikes, E.L.**, S. N. Burgess [‡], R. Grandpre [‡], and T. P. Guilderson, Assessing modern deep water ages in the New Zealand region using deep-water corals, *Deep Sea Research* 1,55, 38-49, doi:10.1016/j.dsr.10.004.
- 2007 Uhle M. E., **E. L. Sikes***, S. D Nodder, and C. A. Pilditch, Sources and diagenetic status of organic matter in the Hauraki Gulf, New Zealand: Evidence from the carbon isotopic composition of D- and L-amino acids. *Org. Geochem.*, 38, 440-457.
2006. Shane, P., **E. L. Sikes** and T. P. Guilderson, Tephra beds in deep-sea cores off northern New Zealand: implications for the history of Taupo Volcanic Zone, Mayor Island and White Island volcanoes, *Journal of Volcanology and Geothermal Research*, 154, 276-290.
2005. Gadd, J. B. [‡], C. Stewart and **E. Sikes**, Estrogenic activity and known environmental estrogens in sewage effluent, Hamilton New Zealand, *Australian Journal of Ecotoxicology*, 11 (3) 149-154.
2005. Samson, C.R. [‡], **E.L. Sikes***, and W. R. Howard, Deglacial paleoceanographic history of the Bay of Plenty, New Zealand. *Paleoceanography*, 20, PA4017, doi:10.1029/2004PA001088.
2005. **Sikes, E. L.**, T. O'Leary, S. D. Nodder, and J. K. Volkman, Alkenone temperature records and biomarker flux at the subtropical front on the Chatham Rise, SW Pacific Ocean, *Deep Sea Research*, 52(5), 721-748.
2005. Hayward, B.W., H.R. Grenfell, A. T. Sabaa [‡], and **E. L. Sikes**, Deep-sea benthic foraminiferal record of the mid-Pleistocene transition the SW Pacific, in: M.J. Head and P.L. Gibbard (eds) *Early-Middle Pleistocene Transitions: The Land-Ocean Evidence*, Geological Society, London, Special Publications, 247, 85-115.
2004. Sabaa, A. T., **E. L. Sikes***, B. W. Hayward, and W. R. Howard, Pliocene sea surface temperature changes in ODP Site 1125, Chatham Rise, east of New Zealand, *Marine Geology*, 205 (1-4) 113-125.
2002. **Sikes, E. L.** and M-A. Sicre, Relationship of the tetra-unsaturated C₃₇ alkenone to salinity and temperature: Implications for paleoproxy applications, *Geochem., Geophys., Geosyst.*, 3 (11),doi: 10.1029/2002GC000345, 11pp.
2002. **Sikes, E. L.**, W.R. Howard, H. L. Neil and J.K. Volkman, Glacial-interglacial sea surface temperature changes across the subtropical front east of New Zealand based on alkenone unsaturation ratios and foraminiferal assemblages, *Paleoceanography*, 17 (2), 10.1029/2001PA000640.
2001. Roselle-Melé, A. E. Bard, K.-C. Emis, J.O. Grimalt, P. Müller, R. Schneider, I Bouloubassi, B. Epstein, K. Fahl, A Fluegge, K. Freeman, M. Goñi, U. Günter, D Hartz, S. Helebust, T. Herbert, M. Ikehara, R. Ishwatari, K. Kawamura, F. Kenig, J.de Leeuw, S. Lehman, L. Mejanelle, N. Ohkouchi, R. D. Pancost, C. Pelejero, F. Prahl, J. Quinn, J.-F. Rontani, F. Rostek, J. Rullkötter, J. Sachs, T. Blanz, K. Sawada, D. Schutz- Bull, E. Sikes, C. Sonzogni, Y. Ternois, G. Versteegh, J.K. Volkman, S. Wakeham, Precision of the current methods to measure the alkenone proxy (U^k₃₇) and absolute alkenone abundance in sediments: Results of an interlaboratory comparison study, *Geochem., Geophys., Geosyst.*, 2(7), 28pp doi: 2000GC000141
2000. **Sikes, E.L.**, C. R. Samson, T. P. Guilderson, and W.R. Howard, Old radiocarbon ages in the southwest Pacific during the last glacial period and deglaciation, *Nature*, 405, 555-559.
2000. Prahl, F., T. Herbert, S.C Brassell, N. Ohkouchi, M. Pagani, A. Rosell-Mele, D. Repeta, and **E. Sikes**, Status of alkenone paleothermometer calibration: Report from Working Group 3, *Geochem., Geophys., Geosyst.*, 1, paper 2000GC000058.
1999. Harris, P. T., W. Howard, P. E. O'Brien, P. N. Sedwick, & **E. L. Sikes**, Quaternary Antarctic ice-sheet fluctuations and Southern Ocean palaeoceanography: natural variability studies at the Antarctic CRC. *AGSO Journal of Australian Geology and Geophysics*, 17, 105-119.
1998. Pichon, J.J., **E.L. Sikes**, C. Hiramatsu, and L. Robertson, Comparison of U^k₃₇ and diatom assemblage sea surface temperature estimates in Holocene sediments from the Southern West Indian Ocean, *Journal of Marine Systems*, Special Volume - Carbon fluxes and Dynamic Processes in the Southern Ocean: Present and Past, J. Le Fèvre and P. Tréguer (Eds), 17(1-4),541-554.
1998. Volkman, J.K., S.M. Barrett, S.I. Blackburn, M.P Mansour, **E. L. Sikes**, and F. Gelin, Microalgal biomarkers: a review of recent research developments. *Organic Geochemistry*, 29, 1163-1179.
1997. **Sikes, E.L.**, J.K. Volkman, L.G. Robertson, and J.-J. Pichon, Alkenones and alkenes in surface water and sediments of the Southern Ocean: Implications for paleotemperature estimation in polar regions. *Geochim. Cosmochim. Acta*, 61, 1495-1505.

1997. Connell, R. D. and **E.L. Sikes***, Controls on Late Quaternary sedimentation of the South Tasman Rise. *Australian Journal of Earth Sciences*, 44, 667-675.
1997. Volkman, J.K., C.L Farmer, S.M. Barrett and **E. L. Sikes**, Unusual dihydroxysterols as chemotaxonomic markers for microalgae from the order Pavloales (Haptophyceae). *J. Phycol.* 33, 1016-1023.
1996. **Sikes, E.L.** and L.D. Keigwin A reexamination of northeast Atlantic sea surface temperature and salinity over the last 16 kyr. *Paleoceanography*, 11, 327-342.
1996. Fulford-Smith, S.P. [‡] and **E.L. Sikes** The Evolution of Ace Lake Antarctica, determined from sedimentary diatom assemblages. *Palaeogeog., Palaeoclim., Palaeoeco.*, 124, 73-86.
1995. Jasper, J.P., **E.L. Sikes** and J.M. Hayes Transfer of CO₂ from Equatorial latitudes to high latitudes during the late Quaternary. In: *Air-Water Gas Transfer*, B. Jahne and E. Monahan. eds., AEON, Verlag and Studio, Hanau, Germany, pp 879-887.
1995. Robertson, L. [‡], A. T. Revill, J. K. Volkman, and **E. L. Sikes**, Organic geochemistry of Antarctic lakes and fjords. In *Organic Geochemistry: Developments and Applications to Energy, Climate, Environment and Human History*, eds J. O. Grimalt and C. Dorransoro, A.I.G.O.A., San Sebastian, pp. 253-254..
1995. Volkman, J.K., S. M Barrett, S. I Blackburn, and **E. L. Sikes**, Alkenones in *Gephyrocapsa oceanica*: implications for studies of paleoclimate. *Geochim. Cosmochim. Acta*, 59 (3), 513-520
1994. **Sikes, E.L.** and L.D. Keigwin, Equatorial Atlantic sea surface temperatures for the last 30 kyr: A comparison of U^k₃₇, δ¹⁸O, and foraminiferal assemblage estimates., *Paleoceanography*, 9, 31-45.
1993. **Sikes, E.L.** and J.K. Volkman Calibration of alkenone unsaturation ratios (U^k₃₇) for paleotemperature estimation in cold polar waters'. *Geochim. Cosmochim. Acta*, 57, 1883-1889.
1993. Virtue, P, P.D. [‡], Nichols, S. Nicol, A. McMinn, and **E.L. Sikes** The lipid composition of *Euphausia superba* Dana in relation to the nutritional value of *Phaeocystis pouchettii* (Hariot) Lagerheim, *Antarctic Sci.*, 5, 169-177.
1991. **Sikes, E.L.**, J.W. Farrington, and L.D. Keigwin, Use of alkenone unsaturation ratios to determine past sea surface temperatures: Methodology and calibration considerations. *Earth Planet. Sci. Lett.*, 104, 36-47.
1991. **Sikes, E.L.**, L.D. Keigwin, and W. B. Curry 'Pliocene paleoceanography: circulation and oceanographic changes associated with the 2.4 Ma Glacial event'. *Paleoceanography*, 6, 245-257.
1984. Paull, C.K., B. Hecker, R. Commeau, R.P. Freeman-Lynde, A.C. Neumann, W.P. Corso, J.E. Hook, **E.L. Sikes** and J. Curray, Biological communities at the Florida Escarpment resemble hydrothermal vent taxa. *Science*, 226, 965-967.
1984. Paull, C.K., B. Hecker, R., A.C. Neumann,, **E.L. Sikes** , J.E. Hook, W.P. Corso, . R.P. Freeman-Lynde, Commeau, S. Golubic, and J. Curray 'The seeps find at the Florida Escarpment'. *Oceanus*, 27:3, 32-33.

Chapters in reviewed books:

1999. **Sikes, E.L.**, Paleo-Sea Surface Temperature Estimations: Organic Geochemistry and Paleoclimates, in Encyclopedia of Geochemistry edited by C.P Marshall and R.W. Fairbridge, Kluwer, Boston, 475-477.

Technical reports:

1990. Sikes, E. L. Refinement and application of new paleotemperature estimator, Ph.D thesis, MIT/WHOI Joint Program, *WHOI Technical Rept .90-26*, Woods Hole, MA, USA, 129 pp.

Papers submitted, accepted, or in review:

- Rose, K. A, [‡] **E.L. Sikes***, T.P. Guilderson, P.A Shane, T.M. Hill, R. Zahn, and H. Spero, Southern Ocean constraints on marine radiocarbon redistribution during the deglaciation (in revision, *Nature*).

First Authored Published Abstracts:

- 2009 **Sikes, E L**, P. Augustinus, P M, Medeiros, M. Makou, Northern New Zealand deglacial climate and the Antarctic Cold Reversal, Cooler and drier, or wetter? Or Both? *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract PP11D-1358
- 2008 **Sikes, E.L.**, M.Y.S. Cook, and T. P. Guilderson, Late Glacial and Early Deglacial Estimates of the Radiocarbon Content of Intermediate and Deep Water from the Southwest Pacific. *Eos Trans. AGU*, 89(52), Fall Meet. Suppl., Abstract PP52B-06
- 2008 **Sikes, E.L.M.A.** Uhle, and S.D. Nodder Source, degradation, and fate of sedimentary organic matter in a coastal marine environment: Evidence from the Hauraki Gulf, New Zealand., *ASLO, Ocean Sci. Supp.* Abstract (108) 893 pg 60.
- 2007 **Sikes E. L.**, P M Medeiros, M. Makou, P. Augustinas, Late Glaciation to early Holocene records of climatic and vegetation changes from Onepoto Crater, Auckland New Zealand: a biomarker and isotopic approach, *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstrac PP43B-1262

2006. **Sikes, E. L.**, K.R. Rose, T. P. Guilderson and P.A. Shane Deep Water Ages in the Southwest Pacific and Southern Ocean Since the Last Glacial Maximum *EOS, Trans. AGU, 87(52) Fall Meet. Suppl., Abstract PP44A-06 INVITED.*
2006. **Sikes, E. L.**, M. E. Uhle, and S. D. Nodder, Assessing the Source and Degradation of Organic Matter in a Coastal Marine Environment Using Compound Specific Carbon Isotopic Analysis: Evidence from the Hauraki Gulf, New Zealand, *EOS, Transactions AGU, 87 Ocean Sci. Suppl.*, Abstract OS22B-06.
2005. **Sikes, E. L.**, T. P. Guilderson and P.A. Shane, Paleoveilication of Deep Water Masses During the Last Glacial Maximum in the Southwest Pacific and Southern Ocean, *EOS, Transactions AGU, 86 (52) Abstract PP51F-06.*
2004. **Sikes, E. L.**, A. L King, and W. R. Howard, Sediment trap evidence for seasonality-based differences in alkenone and foraminiferal sea surface temperature estimates in the Southern Ocean ICP8 abstract # A3-35.
2004. **Sikes E. L.**, Uhle M. E., Nodder S. D., Hage M. M., and Howard M. E. Assessing the Distribution and Sources of Organic Matter in a Coastal Marine Environment Using Compound Specific Carbon Isotopic Analysis of Sedimentary Lipids: Evidence from the Hauraki Gulf, New Zealand. *EOS, Transactions AGU 85(17), Jt. Assem. Suppl. Abstract B43B-01.*
2004. **Sikes, E. L.**, A. L King, and W. R. Howard, Sediment trap evidence for seasonality-based differences in alkenone and foraminiferal temperature estimates in the Southern Ocean *EOS, Trans. AGU, 84(52) Ocean Sci. Meet. Suppl. Abstract OS21G-04.*
2002. **Sikes, E. L.** and T. P. Guilderson, Surface Water Reservoir Ages and Paleoveilication During the Last Glacial Maximum in the Southwest Pacific and Southern Ocean, *EOS, Trans. AGU, 83(47) Fall Meet. Suppl.*, Abstract PP11C-09 pg. 972.
1998. (Invited) **Sikes, E. L.**, C. R. Samson, W. R. Howard, and L. G. Robertson, Sea Surface temperature changes on the South Tasman Rise since the last glacial maximum, *EOS, Transactions AGU, 79(17), 178.*
1997. **Sikes, E. L.**, C. R. Samson, T. P. Guilderson, and W. R. Howard, Past Ocean-Atmosphere radiocarbon age differences from the New Zealand region of the southwest Pacific, *EOS, Transactions AGU, 78(46), 385.*
1997. **Sikes, E. L.**, J. K. Volkman, Sea Surface temperature variations and productivity changes across the subtropical convergence east of New Zealand since the last glaciation, Antarctica and Global Change: Interactions and Impacts Symposium, Antarctic CRC Hobart, TAS Australia, abs. # 392.
1996. **Sikes, E. L.**, J. K. Volkman, L.G. Robertson, and H. L. Neil, Sea Surface Temperature and Productivity Changes Across The Subtropical Convergence East Of New Zealand Since the Last Glaciation Based on Alkenone Unsaturation Ratios, AMSA National Conference, pg 81.
1995. **Sikes, E. L.**, H. L. Neil, and J. K. Volkman Sea Surface Temperature and Productivity Changes Across the Subtropical Convergence East of New Zealand Since the Last Glaciation based on Alkenone Unsaturation Ratios, in: *Carbon Fluxes and Dynamic Processes in the Southern Ocean: Past and Present*, Southern Ocean JGOFS International Symposium pg 100.
1994. **Sikes, E.L.**, H. L. Neil and J.K. Volkman, Sea surface temperature changes across the subtropical convergence east of New Zealand since the last glaciation based on alkenone unsaturation ratios, *EOS Transactions AGU, 75, 54.*
1993. **Sikes, E. L.** and J. K. Volkman, Using alkenone unsaturation ratios to estimate past sea surface temperatures (SST) in the Southern Ocean, *Geol. Soc. Am. Abst. 455.*
1992. **Sikes, E. L.**, and J.K. Volkman, Calibration of long-chain alkenone unsaturation ratios for paleotemperature estimation in cold polar waters, Proc. International Conference on Paleoceanography IV, 264.
1992. **Sikes, E. L.**, Neil, H.L. and S. D. Nodder, 1992, Changes in the Southern Ocean over the last 22 ky,: A view from the Chatham Rise, Proc. International Conference on Paleoceanography IV, 264.
1989. **Sikes, E.L.**, and L.D. Keigwin, A sea surface temperature record for the Northeast Atlantic based on alkenone unsaturation ratios, *EOS Transactions AGU, 70, 1134.*
1989. **Sikes, E.L.**, J.W. Farrington and L.D. Keigwin Jr., Determination of past sea surface temperatures of the Equatorial Atlantic using alkenone unsaturation ratios, *Terra Abstracts, 1, 54.*
1988. **Sikes, E.L.**, J.W. Farrington and L.D. Keigwin Jr., Use of alkenone unsaturation ratios to determine past sea surface temperatures: Methodology considerations, *EOS Transactions AGU, 69, 1254.*
1987. **Sikes, E.L.** and L.D. Keigwin Jr., Paleoceanographic changes associated with the 2.4 my glacial event in the North Atlantic, GSA Abstracts with Programs, 19, 3.
1984. **Sikes, E.L.** and A.C. Neumann, Biological erosion of deep carbonate margins, (abstract), SEPM Mid-year meeting, p 74.

Other relevant published abstracts:

- 2009 Rose, K.R., **E. L. Sikes**, T. P. Guilderson, P. Shane, R Zahn, T.M. Hill, H J Spero, No dead carbon in the upper Southern Ocean and South Pacific during the early deglaciation, *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract PP11E-06
- 2009 Oswald, L, Hardee, M L, Medeiros, P M, Popp, B N, **Sikes, E. L** , Effect of non-thermal physiological factors on UK'37-derived temperature estimates in the waters near the Chatham Rise, New Zealand, *Eos Trans. AGU*, 90(52), Fall Meet. Suppl., Abstract PP31B-1335
- 2008 Medeiros, P.M. †, **Sikes, E.L.** Changes in natural source inputs to sedimentary organic carbon along the Mullica River and estuary NJ: a multi-biomarker and stable isotope characterization. *ASLO, Ocean Sci. Supp.* Abstract (065) 866 pg 58.
- 2007 Makou, M. †, **Sikes E. L.**, P. Augustinus, and P.A. Shane , Biomarker records of vegetation changes and aridity from Onepoto Crater, Auckland, New Zealand, XVII INQUA Congress Abstracts. *Quaternary International* (167-168), pg 264 Abstract # 0953.
- 2007 Mahan, T S, **E. L. Sikes**, D. Deocampo, C. Samson, W. Howard, Frontal movement of the subtropical convergence south of Tasmania over the last 60,000 years , *Eos Trans. AGU*, 88(52), Fall Meet. Suppl., Abstract PP13B-1286.
- 2007 Medeiros, P.M., **Sikes, E.L.** Multi-biomarker characterization of sedimentary organic carbon along the Mullica River, NJ. *Eos Trans. AGU*, 88 (23), Jt. Assem. Suppl., Abstract OS51C-03.
- 2006 Rose, K.R., **E. L. Sikes**, T. P. Guilderson, Zahn, R, Hill, T M, Spero, H J., Investigating Deglacial Climate Records: The Carbon Isotope Minimum Event and High- Resolution Radiocarbon Ages *EOS, Trans. AGU*, 87(52) Fall Meet. Suppl., Abstract PP33A-1778.
- 2006 Jordan, K A, Rosenthal, Y, Lear, C H., Keigwin, L., **Sikes, E L**, Temperature and Carbonate Ion Effects on Elemental Ratios in Benthic Foraminifera *EOS, Trans. AGU*, 87(52) Fall Meet. Suppl., Abstract PP21C-1719.
2006. **Sikes, E.L.**, J.L. Wilkin, and E. Simms, Salutations from the Southern Ocean: A Scientist's Web Log Reached Further than Expected *EOS, Transactions AGU*, 87 *Ocean Sci. Suppl.*, Abstract OS13M-05 INVITED
- 2006 Edwards, S.H., **E. L. Sikes**, T. P. Guilderson, The Paleoveentilation of the South Pacific *EOS, Transactions AGU*, 87 *Ocean Sci. Suppl.*, Abstract OS26B-12 INVITED
2004. Uhle M. E., **Sikes E. L.**, Nodder S. D., Hage M. M., and Howard M. E. Microbial Reworking Organic Matter in the Hauraki Gulf, New Zealand: Evidence from the Stable Isotopic Composition of Sedimentary D- and L-Amino Acids. *EOS, Transactions AGU* 85(17), Jt. Assem. Suppl. Abstract B51A-09.
2003. Hage M., Uhle M., **Sikes E. L.**, Nodder S., and Howard S. Source and diagenetic status of organic matter in the Hauraki Gulf, New Zealand using the distribution and carbon isotopic composition of amino acids. *Geological Society of America Abstracts with Programs* 34(7), 178.
2003. Howard M., Uhle M., **Sikes E. L.**, Nodder S., and Hage M., Distribution and sources of organic matter to the Hauraki Gulf, New Zealand using molecular characterization and carbon isotopic analysis of sedimentary lipids. *Geological Society of America Abstracts with Programs* 37(4), 178.
2003. Howard, W. R., Moy, A., Samson, C. R., and **Sikes, E. L.** Paleoceanographic constraints on glacial-interglacial carbon cycling on the subantarctic South Tasman Rise *EOS, Transactions AGU*.
1998. Howard, W. R., Samson, C. R. and Sikes, E. L. Foraminiferal and alkenone-based SST reconstructions of the glacial and Holocene South Tasman Rise, *EOS, Transactions AGU*, 79(45), Fall Meeting San Francisco, December, F471.
1996. Robertson, L.G., Volkman, J. K., **Sikes, E. L.**, and Nodder, S. D. Characterisation and fluxes of particulate lipids in waters east of New Zealand: Relation to water masses and seasonality. *AMSA National Conference, AMSA National Conference, Hobart Tasmania, July*, pg 76.
1996. Samson, C. R. and **Sikes, E. L.**, High resolution climatic records of the last deglaciation from the Pacific and Southern Oceans, *AMSA National Conference, Hobart Tasmania, July*, pg 79.
1996. Volkman, J. K., Sikes, E. L., Robertson, L. R., and Neil, H. L. Changes in phytoplankton productivity and sea surface temperature across the Subtropical Convergence east of New Zealand since the last glaciation based on biomarker compositions. *Journal of Conference abstracts 1(1), Goldschmidt Conference, Heidelberg, Germany, April*, 658.
1995. Samson, C. R., **Sikes, E. L** and Wells, P. E., High Resolution climatic records of the last deglaciation from the New Zealand and Tasman Sea regions of the southern hemisphere, In: *The role of paleoceanographic linkages in the global system. Fifth International Conference on Paleoceanography Program and Abstracts, Halifax Nova Scotia, October*, 71.
1995. Robertson, L.G. , Revill, A.T., Volkman, J.K., and **Sikes, E. L.** Organic geochemistry of Antarctic saline lakes and fjords, *Proceedings of the 17th International Meeting on Organic Geochemistry*, 253-254.

Papers in Preparation:

Mederios, P.M. †, **E.L. Sikes**, Changes in natural source inputs to sedimentary organic carbon along the Mullica River and estuary NJ: a multi-biomarker and stable isotope characterization. (in prep: to be submitted to *Organic Geochemistry*)

Sikes E. L., P M Medeiros, P. Augustinas, M. Makou, K. Freeman, Northern New Zealand Deglacial Climate and the Antarctic Cold Reversal, Cooler and Drier, or wetter, or Both? (to be submitted to *Geology*)

Sikes, E.L. S.D. Nodder, CA. Pilditch, M.A. Uhle, Source, degradation, and fate of sedimentary organic matter in a coastal marine environment: Evidence from the Hauraki Gulf, New Zealand. (to be submitted to *Geology*)

Samson, C.R., **E.L. Sikes***, and W. R. Howard, Deglacial sea surface temperature history of the Tasman Sea, (to be submitted to *Paleoceanography*)

Sikes, E.L., J. K. Volkman, and L. R. Robertson, Changes in phytoplankton productivity and east of New Zealand since the last glaciation based on biomarker compositions (to be submitted to *Global Biogeochemical Cycles*).

Sikes, E. L., A. L King, and W. R. Howard, Sediment trap evidence for seasonality-based differences in alkenone and foraminiferal sea surface temperature estimates in the Southern Ocean. (to be submitted to *Geochem., Geophys., Geosys.*)

Conference presentations, lectures, demonstrations:

Conference presentations

May 2009; *Past Climates and INQUA (International Quaternary Association) INTIMATE symposium.*, Oral presentation: **Sikes, E L**, P. Augustinus, P M, Medeiros, M. Makou, Northern New Zealand Deglacial Climate and the Antarctic Cold Reversal, Cooler, Drier, or Both?

August 2008; *Gordon Research Conference: Organic Geochemistry*, poster presentation: **Sikes E. L.**, P M Medeiros, M. Makou, and P. Augustinas, Deglaciation records of climatic and vegetation changes from Oneoto Crater, Auckland New Zealand: a biomarker and isotopic approach.

September, 2004; *International Conference on Paleocyanography 8.*, **Sikes, E. L.**, A. L King, and W. R. Howard, "Sediment trap evidence for seasonality-based differences in alkenone and foraminiferal sea surface temperature estimates in the Southern Ocean" ICP8 abstract # A3-35.

August 2004; *Gordon Research Conference: Organic Geochemistry*, Sikes E. L., Uhle M. E., Nodder S. D., and Hage M. M. Assessing the Distribution and Sources of Organic Matter in a Coastal Marine Environment Using Compound Specific Carbon Isotopic Analysis of Sedimentary Lipids: Evidence from the Hauraki Gulf, New Zealand.

August 2002; *Gordon Research Conference: Organic Geochemistry*, poster presentation: Sikes, E. L., T. O'Leary, S. D. Nodder, and J. K. Volkman, Alkenone temperature reconstructions across the subtropical front on the Chatham Rise: how accurate are the paleo-records?

Invited seminars:

March 2009, University of Auckland, School of Geography and Geological Sciences, "Late Quaternary sea surface temperature changes in the Australia-New Zealand region"

February 2008 Lafayette College, Department of Earth Sciences, "Ocean Temperature and circulation changes on the South Tasman Rise since the last glaciation"

June 2006, Lamont Doherty Earth Institute, "Deep Water Paleoveentilation since the Last Glacial Maximum of the Southwest Pacific and Southern Ocean since the last Glaciation"

March 2006, Princeton University, Department of Geosciences, "Paleoveentilation of the Southwest Pacific and Southern Ocean since the last Glaciation"

April 2005, University of Massachusetts Dartmouth, School of Marine Science and Technology, "Deep Water Paleoveentilation since the Last Glacial Maximum and deglaciation in the Southwest Pacific and Southern Ocean"

November 2004, University of Pennsylvania, Department of Earth and Environmental Sciences seminar series "Ocean Water Reservoir Ages and Deep Water Paleoveentilation since the Last Glacial Maximum and deglaciation in the Southwest Pacific and Southern Ocean"

November 2003, Geophysical Fluids Dynamics Laboratory Princeton, (NOAA) seminar series "Surface Water Reservoir Ages and Paleoveentilation During the Last Glacial Maximum and deglaciation in the Southwest Pacific and Southern Ocean"

September 2003, Massachusetts Institute of Technology, Earth, Atmosphere and Planetary Science Department paleoceanography seminar series ""Alkenone based sea surface temperature estimates: How good is the temperature record in subpolar waters?"

March 2003, Ohio State University Department of Geology colloquium series "Glacial-interglacial sea surface temperature changes across the subtropical front east of New Zealand based on alkenone unsaturation ratios and foraminiferal assemblages"

- September 2002 Geology department, Rutgers University Glacial-interglacial sea surface temperature changes across the subtropical front east of New Zealand based on alkenone unsaturation ratios and foraminiferal assemblages.
- September 2001 Michigan Technological University WISE (Women in Science and Engineering) Invited Speakers program, seminar title “Old radiocarbon ages in the southwest Pacific at 11,900 years ago and the last glaciation”
- February 2001 Californian Institute of Technology, Environmental Science and Engineering seminar series. Seminar title: “Old radiocarbon ages in the southwest Pacific at 11,900 years ago and the last glaciation”.
- October 2000, Byrd Polar Research Center, Ohio State University seminar title “Old radiocarbon ages in the southwest Pacific at 11,900 years ago and the last glaciation”
- December 1998, Fall meeting AGU. Talk title: “Sea Surface temperature changes on the South Tasman Rise since the last glacial maximum”.

Research Grants / Funding:

- 2008 Cook/NJAES Intramural Awards Program, Research Infrastructure Awards A Gas Chromatograph-Mass Spectrometer(GCMS) for the Analysis of Organic Compounds in Marine and Environmental Samples. Lisa Rodenburg, Donna Fennell, Weilin Huang, Nathan Yee, Paul Falkowski (Co-PIs). \$25,500.
- 2008-2011 OCE- 0823487 National Science Foundation, Collaborative Research: Radiocarbon content of the Southwest Pacific and Southern Ocean waters in the Holocene and late Quaternary, E.L. Sikes (PI) and T. P. Guilderson & M. Cook Co-PI , total funds: \$556,918, funds to ELS, \$296,926.
- 2007-2010 OCE-0726408 National Science Foundation, Collaborative Research: Controls on alkenone temperature estimates in subtropical and subpolar waters, E.L. Sikes (PI) and B. N. Popp, total funds \$555,000 funds to ELS \$323,749
- 2006 Cook/NJAES Intramural Awards Program, Research Infrastructure Awards. An Accelerated Solvent Extraction (ASE) System for Analysis of Anthropogenic and Natural Chemicals in Environmental Samples and Biota. L. A. Totten (PI), E. L. Sikes Co-PI. \$34,620.
- 2004-2006 OCE-0425053 National Science Foundation, Paleoveentilation of the Southwest Pacific and Southern Ocean in the Holocene and late Quaternary, E.L. Sikes (PI) and T. P. Guilderson, total funds \$240,780 funds to ELS, \$188,714.
- 2004-2007 OCE-0340676 National Science Foundation, ADVANCE Fellow: Evaluating the Importance of Lateral Transport on Alkenone Temperature Reconstructions in the late Quaternary. E.L. Sikes (PI) \$220,000.
- 2002-2004, OCE-0136651 National Science Foundation, Surface water reservoir ages and paleoveentilation during the LGM and deglaciation, \$40,000, E.L. Sikes (PI) and T. P. Guilderson, funds to ELS, \$40,000.
- 2000-2001 Coral -based estimation of modern deep water radiocarbon ages in New Zealand waters, A\$8000, Australian Institute of Nuclear Science and Engineering (AINSE), Special AMS Grant, E. L. Sikes PI.
- 2000-2002 Re-evaluation of past sea surface temperature estimations around New Zealand, NZ\$8000 University of Auckland Research Committee (UARC) , E. L. Sikes, PI UARC No. 9347/3437538
- 1999-2001 Re-evaluation of past sea surface temperature estimations around New Zealand, NZ \$9000, University of Auckland Research Committee (UARC), E. L. Sikes PI , UARC No. 9347/3437524
- 1999-2001 Acquisition of an automated solvent extraction device, NZ \$50,000, University of Auckland Research Committee (UARC), E. L. Sikes Co-PI, D. Shooter, C. Stewart, UARC No. 9347/3394952
- 1999-2001 Tracing nutrient pathways in the Hauraki Gulf with Anthropogenic and natural compounds, NZ \$6,500, University of Auckland Research Committee (UARC) E. L. Sikes PI, UARC No. 9347/3437530.
- 1996- 1998 The role of the Southern Ocean in the rapid climatic shifts of the last deglaciation. A\$12,000, Australian Institute of Nuclear Science and Engineering (AINSE) Special AMS Grant: E.L. Sikes (Co-P.I.) and C.R. Samson. AINSE Project No 96/190R AMS.
- 1996-1997 Estimating sea surface temperature and carbon dioxide content of surface waters during climate change, A\$15,000, Department of Science Industry and Technology (DIST) Bilateral science and technology collaboration programs, E. L. Sikes, PI, File No 96/4340 .
- 1996 ¹⁴C reservoir ages of the southwest Pacific surface and deep waters during the Holocene and last glacial maximum: Constraints on Southern Ocean ventilation. A\$4,800, AINSE Special AMS Grant: Howard, W.R., E.L. Sikes (Co-PI) and C.R Samson, AINSE Project No 96/191R AMS .
- 1995 Estimating sea surface temperature and carbon dioxide content of surface waters during climate change, A\$10,000 , Department of Science Industry and Technology (DIST) Bilateral science and technology collaboration programs, E. L. Sikes, PI, File No 96/4340.
- 1995 The role of the Southern Ocean in the rapid climatic shifts of the last deglaciation, A\$6,000, AINSE Special AMS Grant, E.L. Sikes (Co-PI)and C.R. Samson, AINSE Project No 95/R155 AMS

- 1993 Palaeoreconstruction of Southern Ocean Climates, A\$9,800, DITARD Australia-France collaboration on Antarctica (Atmosphere, Climate and Palaeoreconstruction) travel grant program, E.L. Sikes(Co-PI) and J.K. Volkman.
- 1992 Palaeoreconstruction of Southern Ocean Climates, A\$10,100, DITAC Australia-France collaboration on Antarctica (Atmosphere, Climate and Palaeoreconstruction) grant program, E.L. Sikes (Co-PI) and J.K. Volkman.
- 1992-1994 Assessing Palaeoclimate and palaeoceanography with organic geochemical markers and isotopes, A\$75,000, Australian Research Council (ARC) large grant, E.L. Sikes (Co-PI) and: J.K. Volkman, ARC, No. F39140429.
- 1992-1994 Assessing Palaeoclimate and palaeoceanography with organic geochemical markers and isotopes, A\$150,000, Australian Postdoctoral Research Fellowship ,Australian Research Council (ARC), E.L. Sikes (PI) , Sponsor: J.K. Volkman.
- 1991 Use of organic geochemical markers for paleoclimatic assessment, A\$18,700, Antarctic Science Advisory Committee Grant program (ASAC), E.L. Sikes ,(PI), J.K. Volkman, G.W. Paltridge and H.R. Burton, project No. 499.
- 1988 Development of an new paleotemperature estimation technique, E.L. Sikes ,(PI), Ocean Ventures Fund (OVF), OVF #25.85.08.

TEACHING:

July 2001-2008 (Rutgers University)

Co-developed and lectured in: Dynamics of Marine Ecosystems fall 2005.

Co-developed and supervised Oceanography seminar course fall 03.

Conducted and supervised Oceanography seminar course (fall 04, Spring 04, 06)

Earth System Science Colloquium: Global warming (Spring 2007)

Lectured in: Dynamics of Marine Ecosystems (annually fall 2006- present).

Introduction to Oceanography (Spring 2008)

Introduction to marine science (4-5 lectures) (fall 2001 and 2003)

Chemical Oceanography(annually Fall 2001-2008)

Undergraduate supervision:

Supervised undergraduate summer student fellows: 2004-2006

Rachel Grandpre , Smith College (geology)

Sarah Edwards, University of Wisconsin, Madison (geology)

Tiffany Mahan, Cal State Sacramento (geology)

Supervised undergraduate *Introduction to Scientific Research* students,

sophomore Mansi Shah, spring 2008

freshman Isabella Arias, spring 2010

Supervised undergraduate Marine Science majors for lab experience:

Anupreet Anand summer and fall 2008.

Jon Kleber Fall 2008, 2009

Katelyn Mineo Fall 2009

Chelsea Martin Spring 2010

Thesis committee member (2007) for T. Mahan, senior thesis based on her summer work at Rutgers.

Graduate supervision:

Thesis committee member (2006-present) for marine science PhD. candidate Eleni Anagnostou.

Primary supervisor (2009-present) marine science MSc. Candidate Anna Hermes

Thesis committee member for 3 continuing students at the University of Auckland through Feb 2003.

Post-graduate supervision:

Matthew Makou (2005-2007) Patricia Mederios (2006- present)**1998- June 2001 (University of Auckland)**

Supervised 5.7 masters students

All courses in the faculty of science are team taught.

Coordinated an average of 2 courses a year, and taught the equivalent lectures of 2 full courses a year

Lectured in:

Geology: 112 Environmental Geology; 201 Field Geology; 202 Historical Geology; 205 Geology and Biota of New Zealand; 302 Modern Methods; 731 Environmental Geochemistry, 754 Sedimentary processes

School of Environmental and Marine Science: 202 Introduction to marine science; 302 dynamics of marine

systems, 711 environmental science 721 special topics in marine science; 722 marine biogeochemistry;

723 Estuarine and coastal processes, 712 geological oceanography; 713 chemical oceanography.

Chemistry 310 environmental chemistry; 710 advanced environmental chemistry

1992- 1998 (University of Tasmania)

Supervised 1 PhD 1.2 masters and 4 honours students

Lectured 3-10 times a year in: carbonate geology and Southern Oceans studies.

Teaching evaluations summary:

At the University of Auckland, my teaching in 2 undergraduate courses was evaluated over 2 years. The SEEQ system evaluated performance on a scale of 1-10, and compared it to the faculty average. Overall score for all aspects of my teaching averaged 7, with no individual aspect ranking below a 5. This average

was consistently at or above the University mean on aspects of clarity, enthusiasm, concern for the students, accessibility, and enhancing interest in the field.

SERVICE

Professional service June 2001 to present (while at Rutgers):

January 2004 –2004: associate editor of *Paleoceanography*

Reviewed:

June 2001 to July 2008

36 papers for refereed journals

37 proposals for government funding bodies.

Served on NSF review panel November 2007. (reviewed 40 proposals for the panel).

University service/committees

Douglass Project Faculty Advisory Committee 2007-2008.

Project SUPER review committee Spring 2008

Graduate program in Oceanography Scholastic Review Committee since 2003

Curriculum development:

2003-04 oceanography seminar (1 credit seminar course for graduates students). Jointly with other staff

2005 – dynamics of marine ecosystems (4 credit undergraduate course) jointly with 2 other staff

Dynamics of Marine Systems to be offered Fall '05. Interdisciplinary undergraduate majors course teaching principles of oceanography based on themes rather than disciplines. Jointly with other staff.

Educational and community outreach service June 2001-June 2008

“Pulse of the Planet” Public lecture series, teacher development program. Presenter of “Missing SINK: Carbon Dioxide and the Ocean Connection” (Funded by the Geraldine R. Dodge Foundation).

“Bring your kids to work” program Leader at IMCS (an all day multi-lab program for 20 school age children in the department. 2006, 2007

10 presentations to elementary school students on oceanography/ science careers 2001-2007.

National Ocean Science Bowl Technical Advisory Panel member, 2002- 2004, 2006-2007.

Shore Bowl moderator 2002-2008.

Chief Scientist Shipboard semi daily “blog” posted during coring cruise March 2005

April 2005 Scientist in Residence Community Park Elementary (in coordination with MARE program at IMCS)

Professional service 1995- June 2001 (While in Australia and New Zealand)

Reviewed:

28 papers for 6 international journals for an average of 3-4 a year for the journals:

Paleoceanography, Geochimica et Cosmochimica Acta, Deep Sea Research, Organic Geochemistry, Geophysical Research Letters, Marine Chemistry.

45 proposals for an average 6 proposals a year for national funding agencies specifically:

26 proposals for the US National Science Foundation (NSF)

2 for the Ocean Drilling Program

2 for Swiss and Dutch national funding agencies

Search committees

Professional level (scientist or professorial level): 1

Technical research assistant: 3

Educational and community outreach service 1995- June 2001

University of Auckland: marine science curriculum committee.

Educational outreach at the primary or secondary school of 1 visit per year to lecture to students on oceanography. Lead fieldtrips of elementary students to view geology department collection of fossils.

1999-2001 Volvo Ocean Adventure website initiative. Development of a website intended to bring oceanographic and environmental awareness to intermediate and high school students.