

## CURRICULUM VITA

*As of January 21, 2007*

### **Jeffrey Paul Chanton**

Distinguished Research Professor

John W. Winchester Professor of Oceanography

Department of Oceanography, Florida State University, Tallahassee, Florida 32306

850-644-7493, fax 850-644-2581, email [jchanton@mailier.fsu.edu](mailto:jchanton@mailier.fsu.edu)

### **A. Education**

New College                      Natural Sciences<sup>1</sup>                      A.B. 1975

UNC-Chapel Hill                      Marine Sciences<sup>2</sup>                      M.S. 1979

UNC-Chapel Hill                      Marine Science<sup>3</sup>                      PhD. 1985

1. specialization in chemistry, Senior thesis, Synthesis, Characterization and Structure of an Unusual Organometallic triple Ion. Published in *Journ. Amer. Chem. Soc.*
2. M.S. thesis on radiochronometric dating.
3. PhD dissertation conducted on S cycling in marine sediments employed stable isotope tracing.

### **B. Experience**

1997. Professor, Dept. of Oceanography, Florida State University. Concurrent Doctoral Directive Status in the Department of Chemistry.

1993. Associate Professor, Dept. of Oceanography, Florida State University.

1988. Assistant Professor, Dept. of Oceanography, Florida State University.

1987. Research Assistant Professor, UNC Chapel Hill.

### **C. Awards**

2006. Distinguished Research Professor Award, Florida State University

2005. Aldo Leopold Fellowship Award

2005. Florida Wildlife Federation Conservation Communicator of the Year

2003. Awarded named Professorship, John W. Winchester Professor of Oceanography.

1993. Developing Scholar Award, Florida State University.

**D. My Research Focus** is fairly broad and follows the focus of either methane and carbon dioxide production, emission and cycling, and/or stable isotope analysis. I work in six different areas:

1. wetlands-- permafrost decomposition in the northern boreal zone;
2. food webs-- trophic relationships in estuaries;
3. reducing methane emissions to the atmosphere, designing landfill cover soils which promote the growth of methane-consuming bacteria;
4. methane gas hydrates, which some estimate may be a large reservoir of fossil fuel to be mined;
5. pine forests, which can be large sinks for excess CO<sub>2</sub>; and
6. groundwater discharge, an overlooked process which is important to the nutrient budgets of coastal waters.

## **E. Outreach and Education**

I give presentations on the science of climate change to local churches, synagogues, civic groups, campus undergraduate organizations and government organizations, including the Florida Fish and Wildlife Conservation Commission and Florida Department of Environmental Protection. In addition to scientific publications, I have written articles for popular magazines and newsletters, including *Florida Naturalist* and *Florida Wildlife*.

In addition to supervising the research of graduate students, I teach a number of undergraduate classes including Oceanography and Global Change and have created a class for non-science majors to introduce them to hot topics in the environmental sciences. I have chaired a committee to initiate a new M.S. degree in Environmental Sciences at Florida State University. I testified on non-point source pollution to President Bush's Ocean Commission and was an associate member of the Scientific Committee on Ocean Research Working Group on Submarine Groundwater Discharge and its Influence on Coastal Processes.

## **F. Graduate Students**

### **Ph.D. Dissertations Supervised**

**James Happell**, completed November, 1992. current position, Associate Professor, University of Miami, Director of Tritium laboratory.

**Jennifer Cherrier**, completed Spring, 1997. *co-advised (with J. Bauer)*. current position, Associate Professor, Florida A & M University.

**2001 LINDEMAN AWARD, American Society of Limnology and Oceanography**

**Glynnis Bugna**, completed Summer, 1999. current position Research Associate, Florida A & M University, Wetlands Center.

**Joanne Lombardi**, completed Summer, 1999. current position in industry.

**Lynda Chasar**, completed 2002, Assistant Professor, Florida A & M University.

**Kevin Dillon**, completed Spring, 2003. Current position, Assistant Professor, University of Southern Mississippi.

**Carl Childs**, 2004. co-advised with Lita Proctor. Current position, with NOAA.

**Jim Prater**, 2005. Currently with Office of Naval Research.

### **M.S. THESES SUPERVISED**

**Ghislain Gerard**, completed, November, 1992. current position, U.S. Dept. of Agriculture.

**Harmon Harden**, completed, November, 1992. technician Dept. of Oceanography.

**Heidi Hertler**, Co-advised, completed April, 1993. current position, Staff Scientist, The Academy of Natural Science, Philadelphia. Ph.D. Student, Drexel University.

**Michelle Epp**, completed November, 1993. received Ph.D., Univ. of Alaska.

**Glynnis Bugna**, completed May, 1995. Methane as a tracer of submarine groundwater discharge into the NE gulf of Mexico. Current position, Florida A&M

**Mark Schrope**, 1995. Current position, Harbor Branch Institute of Oceanography.

**Trevor Popp**, 1998. Current position, Ph.D. student, Univ. of Colorado.

**Kevin Dillon**, Sulfur hexafluoride as a tracer of groundwater in the Florida Keys. 1998. PhD candidate, FSU.

**Karen Liptay**, May, 1998. Secondary education.

**Linda Rasmussen**, Research Position, Scripps Institute of Oceanography, WHOI.

**Edward Toy**, with *L. Proctor*. April, 2000. Currently entrepreneur.

**Dana Fields**, 2004. Current Position, International Baccalaureate Program, Rickards High School, Tallahassee, FL

**Chad Hanson**, 2004. Current position, Florida DEP.

**Kelly Peeler**, 2004. Research position, University of Delaware.

**Jillian Fleiger**, 2006. Engineering position.

#### **BACCALAUREATE THESES SUPERVISED**

**Laura Lapham**, completed May 1997, currently Ph.D. candidate, UNC-CH.

**Mathew Sampson**, completed, May 1996. \*Co-advised with **L. Proctor**.

**Trevor Popp**, completed May 1995.

**Kim Percy**, completed May 1993, completed Medical School, University of Florida.

#### **Current Graduate Students**

Ph.D. Margaret Murray, Linda Fitzhugh, Rachel Young

M.S. James Nelson, John Hallis, Brandon Bottemly, Deborah Feisler, Karen Shudes.

**Current Post docs & Research Faculty:** Behzad Mortazavi, David Powellson

#### **G. ACADEMIC SERVICE**

2007. Faculty, Austral Summer Institute, University of Concepcion, Chile.

2005-2007. Director Aquatic Environmental Science Masters program, FSU.

2005-07. Associate editor, Journal of Geophysical Research, Biogeosciences.

2005-07. FSU Science Education Advisory Board

2004-07. Associate editor, *Biogeosciences*.

2006. Invited Speaker, FSU College of Law

2006. Invited Speaker, FSU Department of Biology

2005. Invited Speaker, Rotary Club, Civitan Club

2004. Invited Speaker, Utah State University.

2004. Invited Speaker, University of Florida.

2004. Invited Speaker, UNOCAL conference on hydrocarbon migration and mitigation in soils.

2003. Faculty, Stable Isotopes in Biogeochemistry and Environmental Science. Mekrijarvi Research Station, Finland. Graduate students and faculty (25) attended from the Universities of Helsinki, Joensuu, Jyväskylä and Kuopio, the Finnish Forest Research Institute, the National Public Health Institute, the Agrifood Research Institute and the Finnish Institute of Marine Research. October 7-10, 2003.

2003. Keynote speaker and session leader. Finnish Environmental Conference, Joensuu, Finland, May, 2003.

2002 Invited Participant. NSF & American Society of Limnology and Oceanography workshop participant for Emerging Research Issues for the Study of Inland Waters. Boulder Colorado, December, 2002.

2002 Invited Speaker. Soil Science Society of America, Annual Meeting. Indianapolis, November, 2002.

2002 Invited Speaker. Gas Hydrate International Research Workshop, Washington, DC, October 2002.

2002 Invited Speaker at 2<sup>nd</sup> Intercontinental Landfill Research Symposium, Ashville, NC. October, 2002.

2002 Invited Speaker at Solid Waste Association of North America, Monterey, California, March, 2002.

2002 Invited speaker on sea level rise and global climate change at Florida Fish and Wildlife Conservation Commission.

2002 Invited to participate on panel and present written and oral testimony on non-point source pollution of the coastal zone to President Bush's Ocean Commission, St. Petersburg, Fla, February, 2002.

2000 Invited presentation, Florida A&M University, November, 2000.

1999 XVI International Botanical Congress, St. Louis, Missouri, August 1-7. Invited speaker.

1999 Co-Chair, measurement task group, SCOR working group 112, meeting in Birmingham, UK joint with IUGG.

1999 Invited speaker, Tulane University, New Orleans, Louisiana

1999 Discussion leader, Marine Minerals Resources meeting on Gas Hydrates in the Gulf of Mexico, Biloxi, Mississippi.

1999 Invited Speaker, University of Delaware.

1998 Invited Speaker, Cornell University, Ithaca, NY.

1998 Associate member, SCOR Working Group on the Magnitude of Submarine Groundwater Discharge and its Influence on Coastal Oceanographic Processes.

1998 NOAA/Apalachicola National Estuarine Reserve proposal review panel

- 1998 Co-chaired session on Groundwater discharge to the Ocean at AGU Ocean Science meeting, San Diego, February, 1998.
- 1997 Invited speaker, Department of Geology, University of Missouri, Colombia.
- 1997 Invited speaker at special session and at a workshop, Estuarine Research Federation National Meeting, Providence, R.I., October, 1997.
- 1997 Invited Speaker, Chemical Oceanography Gordon Conference, Meriden NH, August, 1997.
- 1997 Invited Speaker and Scientific Collaborator. Swedish Agricultural University at Uppsala, and University of Linkoping, Sweden, August, 1997.
- 1997 Invited participant, Canadian National Centre of Excellence on Sustainable Forestry Management, Workshop on Carbon Cycling, University of Alberta, Edmonton, January 20.
- 1999 since 1995. Advisory Board Member of Southeastern Regional Center of the National Institute for Global Environmental Change (NIGEC is a DOE division).
- 1996 Invited participant Joint NASA-EPA workshop on application of remote sensing. Washington DC, December 12 &13, 1996.
- 1996 Invited participant and reporter, Joint North American-European workshop on Measurement and Modeling of Methane Fluxes from Landfills (IGBP-Igac-Tragex). Oct. 21-24, 1996, Argonne National Labs, USA.
- 1996 Invited participant and panel member, IGBP/GAIM (International Geosphere Biosphere Programme/Global Analysis, Interpretation and Modeling) workshop. May 15-20, 1996, Santa Barbara, California.
- 1996 Invited participant, IGBP- Land-ocean interactions in the coastal zone. July 6-10, Moscow, Russia.
- 1996 Invited speaker, Conference on Sustainable Forestry, Edmonton, Alberta, Canada

## **H. PUBLICATIONS:**

**Manuscripts in review.** *Student first authored papers, author in italics.*

Hines, M.E., K N. Duddleston, J. Rooney-Varga, D. Fields and J. P. Chanton Uncoupling of acetate degradation from methane formation in Alaskan wetlands: Connections to vegetation distribution. submitted to Global Biogeochemical Cycles, 11/30/06.

Börjesson. G. J. Samuelsson, and J. Chanton. Methane Oxidation in Swedish Landfills Quantified with the Carbon Isotope Technique in Combination with an Optical Method for Emitted Methane, submitted to Environmental Science and Technology. 11/06.

Harden, H., M. Hooks, E. Roeder, J. P. Chanton Evaluation of Onsite Sewage Treatment and Disposal Systems in Shallow Karst Terrain. Submitted to Journal of Hydrology, November, 2005.

Koenig, C.C., F. C. Coleman, Lia Chasar, Julie Cavin, and Jeffrey Chanton, Diet of Red Drum (*Sciaenops ocellatus*) and Common Snook (*Centropomus undecimalis*) in Florida Bay and adjacent waters. Marine Ecology Progress Series, in review.

Yuan, L., Abichou, T., Chanton, J., Powelson, D., and De Visscher, A. (2006), "Long-term Numerical Simulation of Methane Transport and Oxidation in a Compost Biofilter," Journal of Waste Management and Research, (In review).

**REVIEWED JOURNAL ARTICLES (\*). REVIEWED BOOK ARTICLES (+)**  
***Student first authored papers, author in italics. Reviewed articles are numbered.***  
**In press, accepted for publication**

\**Dillon, K.S.*, J.P. Chanton and L. K. Smith. Dissolved inorganic N dynamics surrounding a high discharge wastewater disposal well in the Florida Keys. Estuar. Coast. Shelf Sci.

\*Powelson, D. Chanton, J. and Abichou, T. Methane Oxidation in Biofilters Measured by Mass-balance and Stable Isotope Methods. Env. Sci. Tech. In press.

\*Abichou, T., J. Chanton, D. Powelson, J. Fleiger, S. Escoriza, Methane Flux And Oxidation at Two Types of Landfill Covers: Strategies for mitigation. Waste Management, in press.

+Glaser, P.H., D.I. Siegel, A.S. Reeve, and J.P. Chanton. (in press) The hydrology of large peat basins in North America, In Peatlands: Basin Evolution and Depository of Records on Global Environmental and Climatic Changes Martini, I.P., Matinez Cortizas, A., and Chesworth, W. (eds.) Elsevier, Amsterdam

\**Stern, J. C.*, J. Chanton, Tarek Abichou, David Powelson, Lei Yaun, Sharon Escoriza, and Jean Bogner Use of a Biologically Active Cover to Reduce Landfill Methane Emissions and Enhance Methane Oxidation, Waste Management, in press.

\*Rooney-Varga, J.N., M. W. Giewat<sup>1</sup>, K. N. Duddleston<sup>2</sup>, J. P. Chanton<sup>3</sup>, M. E. Links between archaeal community structure, vegetation type, and methanogenic pathway in Alaskan peatlands. FEMS Microbiology Ecology, in press..

**2006**

128\*Peeler, K.A. S. P. Opsahl and J. P. Chanton, Caffeine as an Anthropogenic Source Indicator in Freshwater and Marine Systems. Environmental Science & Technology 40 (24): 7616-7622 Dec 15 2006. DOI: 10.1021/es061213c  
<http://pubs.acs.org/servlet/reprints/DownloadReprint/es061213c/U2tM>

127\*Powelson, D., Chanton, J., **Abichou, T.**, and Morales, J. (2006), "Methane Oxidation in Compost and Water Spreading Biofilters," Waste Management Research, Vol. 29, pp. 1-9.

Chanton, J.P. and Schert, J.D. Scientists See A Solution To Global Warming. Tampa Tribune. February 18, 2006, Section: NATION/WORLD, Page: 11.

Chanton, J.P. Know the gravity of coal decision. Op-Ed, Tallahassee Democrat, October 3, 2006.

126\*. Opsahl, S.P. and J. P. Chanton. Isotopic evidence for methane-based chemosynthesis in the Upper Floridan aquifer food web. *Oecologia*, Volume 150, Number 1 / November, 2006, Pages 89-96

125\*. Chanton, J. P., D. Fields, and M. E. Hines (2006), Controls on the hydrogen isotopic composition of biogenic methane from high-latitude terrestrial wetlands, *J. Geophys. Res.*, 111, G04004, doi:10.1029/2005JG000134.

124\*Abichou, T., D. Powelson, J. Chanton, S. Escoriza, and Jennifer Stern. 2006. Characterization of Methane Flux and Oxidation at a Solid Waste Landfill. *Journal of Environmental Engineering*, Vol. 132, No. 2, 220-228. DOI: 10.1061/\_ASCE\_0733-9372\_2006\_132:2\_220.

123\* *Dulaiova, H.*, W. C. Burnett, J. P. Chanton, W. S. Moore. H. J. Bokuniewicz, M. A. Charette, and E. Sholkovitz (2006). Assessment of Submarine Groundwater Discharges into West Neck Bay, New York, via Natural Tracers. *Continental Shelf Research*. 26, 1971-1983.

122\*Happell, J. D., S. Opsahl, Z. Top, and J. P. Chanton, 2006 Apparent CFC and  $^3\text{H}/^3\text{He}$  age differences in water from Floridan Aquifer springs, *J. Hydrology*, 319, 410-426, 2006

121\* Mortazavi, B., J. P. Chanton, and M. C. Smith (2006), Influence of  $^{13}\text{C}$ -enriched foliage respired  $\text{CO}_2$  on  $^{13}\text{C}$  of ecosystem-respired  $\text{CO}_2$ , *Global Biogeochem. Cycles*, 20, GB3029, doi:10.1029/2005GB002650.

120 \*Spokas, K., Bogner, J., Chanton, J.P., Morcet, M., Aran, C., Graff, C., Moreau-Le Golvan, Y., Hebe, I. (2006) Methane mass balance at three landfill sites: What is the efficiency of capture by gas collection systems? *Waste Management* 26 (5): 516-525.

119\*Prater, J.L., B. Mortazavi, J. P. Chanton. 2006. Diurnal Variation of the  $\delta^{13}\text{C}$  of Pine Needle Respired  $\text{CO}_2$  Evolved in Darkness, *Plant, Cell and Environment*, Vol. 29, 202- 211.

118 \*Walter, K.M., S. A. Zimov, F. S. Chapin, III, J. P. Chanton, D. Verbyla. 2006. A positive feedback to climate warming through methane bubbling from Siberian thaw lakes. *Nature* 443, 71-75(7 September 2006) | doi:10.1038/nature050402005

## 2005

117\*Bugna, G.C. J.P. Chanton, T.B. Stauffer, W.G. MacIntyre, and E.L. Libelo. 2005 Partitioning microbial respiration between jet fuel and native organic matter in an organic-rich long-contaminated aquifer. *Chemosphere*, 60, 177-187.

116\*Chasar L.C. J. P. Chanton, C. C. Koenig, and F. C. Coleman. 2005. Evaluating the effect of environmental disturbance on the trophic structure of Florida Bay, U.S.A.: Multiple stable isotope analyses of contemporary and historical specimens. *Limnol. Oceanogr.* 50: 1059-1072.

115\*Chanton, J.P. 2005 The Effect Of Gas Transport Mechanism On The Isotope Signature Of Methane In Wetlands, *Organic Geochemistry*. Volume 36, Issue 5, 753-768

114\* S.E. Lindberg, W. Dong, J. Chanton, R. Qualls and T. Meyers. 2005 A mechanism for bimodal emission of gaseous mercury from aquatic macrophytes in the Everglades, *Atmos. Envir.* 39, 1289-1301.

113+Chanton, J.P., Chasar, L.C., Glaser, P., Siegel, D., 2005. Chapter 6, Carbon and hydrogen isotopic effects in microbial methane from terrestrial environments. In: Flanagan, L.B., Ehleringer, J.R., Pataki, D.E. (Eds.), *Stable Isotopes and Biosphere-Atmosphere Interactions*, Physiological Ecology Series. Elsevier-Academic Press, Amsterdam, pages 85-105.

112\*Dillon, K.S. and J. P. Chanton. 2005. Nutrient transformations between rainfall and stormwater runoff. *Limnology and Oceanography*, 50, 62-69.

111\*Mortazavi, B., J. P. Chanton, J. L. Prater, A. Oishi, R. Oren and G. Katul. 2005. Temporal variability in  $^{13}\text{C}$  of respired  $\text{CO}_2$  in a pine and a hardwood forest subject to similar climatic conditions. *Oecologia*, 142, 57-69.

Bogner, J., K. Spokas, J. Chanton, D. Powelson, J. Fleiger, and T. Abichou. 2005. Modeling Landfill Methane Emissions From Biocovers: A Combined Theoretical-Empirical Approach. Proceedings of the Tenth International Waste Management and Landfill Symposium, 3-7 October, 2005. S. Margherita do Pula, Sardinia.

## 2004

110\*Barlaz, M.A. R. Green, J. P. Chanton, C. D. Goldsmith, and G. R. Hater Evaluation of a Biologically Active Cover for Mitigation of Landfill Gas Emissions. *Environmental Science and Technology*. *Environ. Sci. Technol.* **2004**, 38,4891-4899.

109\*Bugna, G.C., J. P. Chanton, C. A. Kelley, T. B. Stauffer, W. G. Macintyre, E. L. Libelo. 2004. A field test of  $\delta^{13}\text{C}$  as a tracer of aerobic hydrocarbon degradation. *Organic Geochemistry*, 35 123-135.

108\*Chapman N. R. , J. Pohlman, R. Coffin, J. P. Chanton, and L. L. Lapham, "Thermogenic Gas Hydrates in the Northern Cascadia Margin," /EOS, Transactions, Americana Geophysical Union/ 85, 361 (2004).

107\*De Visscher, A. I. De Pourcq and J. P. Chanton. Isotope fractionation effects by diffusion and methane oxidation in landfill cover soils. *Journal of Geophysical Research*, 109 (D18): Art. No. D18111 SEP 23 2004

106\*Glaser, P.H. J.P. Chanton, D. O. Rosenberry, P.J. Morin, D.I. Siegel, O. Ruud, A. S. Reeve, L. Chasar. 2004. Surface Deformations as Indicators of Deep Ebullition Fluxes in a Large Northern Peatland, *Global Biogeochemical Cycles*, *Global Biogeochem. Cycles*, Vol. 18, No. 1, GB100310.1029/2003GB002069

105\*Mortazavik B., J.L. Prater and J.P. Chanton. 2004. A field based method for simultaneous measurements of the  $^{18}\text{O}$  and  $^{13}\text{C}$  of soil  $\text{CO}_2$  efflux. *Biogeosciences* 1, 1-9.

[www.biogeosciences.net/bg/1/1/](http://www.biogeosciences.net/bg/1/1/) SRef-ID: 1726-4189/bg/2004-1-1  
<http://www.copernicus.org/EGU/bg/bg/1/1/bg-1-1.pdf>

104\*Mortazavi, Behzad, and Jeffrey P. Chanton. 2004. Use of Keeling plots to determine sources of dissolved organic carbon in nearshore and open ocean systems. *Limnol. Oceanogr.* 49: 102-108.

## 2003

103\*Chanton, J.P., W. Burnett, H. Dulaiova, D. R. Corbett, M. Taniguchi. 2003 Seepage Rate Variability in Florida Bay Driven by Atlantic Tidal Height. *Biogeochemistry*, 66:

187-202.

102\* Dillon, K, W. Burnett, G. Kim, J. Chanton, D.R. Corbett, K. Elliot and L. Kump, 2003. Groundwater flow and phosphate dynamics surrounding a high discharge wastewater disposal well in the Florida Keys. *Journal of Hydrology* 284, 193-210.

101\*Sassen, R, A. V. Milkov, E. Ozgul, H. H. Roberts, J. L. Hunt, M. A. Beeunas, J. P. Chanton, D. A. DeFreitas<sup>a</sup>, S. T. Sweet 2003 Gas venting and subsurface charge in the Green Canyon area, Gulf of Mexico continental slope: evidence of a deep bacterial methane source? *Organic Geochemistry*, 34, 1455-1465

100\*Scheutz, C., Kjeldsen, P., Chanton, J., Blake, D., and Bogner, J. 2003. Comparative oxidation and net emissions of CH<sub>4</sub> and selected non-CH<sub>4</sub> organic compounds in landfill cover soils. *Environmental Science and Technology* 37, 5150-5158.

99\*Hale, J.R., DeBoer, J.Z., Chanton, J.P. and Spiller, H.A. 2003. Questioning the Delphic Oracle. *Scientific American* 389, #2, 66-73.

98\*Harden, H.S. J.P. Chanton, J.B. Rose, D.E. John, and M.E. Hooks. Comparison of Sulfur Hexafluoride, fluorescein and Rhodamine Dyes and the Bacteriophage PRD-1 in Tracing Subsurface Flow. *Journal of Hydrology*, 277, 100-115.

## 2002

97\*Burnett, W., J. Chanton, J. Christoff, E. Kontar, S. Krupa, M. Lambert, W. Moore, D. Orourke, R. Paulsen, C. Smithe, L. Smithe and M. Taniguchi. 2002. Assessing Methodologies for measuring groundwater discharge to the ocean. *EOS*, cover article, 83, page 121.

96\*Chanton, J.P., T.J. Arkebauer, H. Harden, S.B. Verma. 2002. Diel variation in lacunal CH<sub>4</sub> and CO<sub>2</sub> concentration and  $\delta^{13}\text{C}$  in *Phragmites australis*. *Biogeochemistry*, 59, 287-301.

95\*Chanton, J.P. and G. Lewis, 2002. Examination of Coupling between Primary and Secondary Production in a River-Dominated Estuary: Apalachicola Bay, Florida, USA, *Limnology and Oceanography* 47: 683-697.

Chanton, J.P. 2002. Global warming and Florida. *Florida Wildlife*, 56, 16-19.

94\*Chanton, J.P. 2002. Global Warming and Rising Oceans. Published online: <http://www.actionbioscience.org/environment/chanton.html>  
[www.actionbioscience.org](http://www.actionbioscience.org). Promoting science literacy.

Chanton, J.P., D. Fields, J. Bogner, M. Morcet, and C. Scheutz. 2002. A stable isotope technique for determining methane oxidation in landfill covers. *Proceedings of the SWANA 7th annual landfill symposium (March 25-28th, Monterrey, California.)*, pages 125-133.

Morcet, M.D., C. Aran, J. P. Chanton, J. Bogner, I. Hébé, K. Spokas, C. Graff. 2002. Evaluation of the seasonal variation of the methane mass balance at a French landfill. *Proceedings of the SWANA 7th annual landfill symposium (March 25-28th, Monterrey, California.)* p 69-80.

93\*Mortazavi, B.; Chanton, J. P. 2002. Carbon isotopic discrimination and control of nighttime canopy  $\delta^{18}\text{O}\text{-CO}_2$  in a pine forest in the southeastern United States Global Biogeochemical Cycles 10.1029/2000GB001390

92\*Mortazavi, B. and Chanton, J.P. 2002 A rapid and precise technique for measuring the  $\delta^{13}\text{C}$  of  $\text{CO}_2$  and  $\delta^{18}\text{O}\text{-CO}_2$  at ambient  $\text{CO}_2$  concentrations for biological applications and the influence of container type and storage time on sample isotopic ratios. Rapid Communications in Mass Spectrometry, 16, 1-6.

## 2001

91\*Arkebauer, T.J. Chanton, J.P. and S. B. Verma, and J. Kim. 2001. Field measurements of internal pressurization in *Phragmites australis* (Poaceae) and implications for regulation of methane emissions in a mid-latitude prairie wetland. American Jour. of Botany, 88, 653-65.

90\*Borjesson, G., J.P. Chanton, and B.H. Svensson. 2001. Methane oxidation in two Swedish Landfill Cover Soils Determined with the Use of  $^{13}\text{C}/^{12}\text{C}$  Isotope Ratios, Journal of Environmental Quality, 30, 369-376.

89\*Christophersen, M., H. Holst, P. Kjeldsen and J. Chanton. 2001. Lateral gas transport in a soil adjacent to an old landfill: Factors governing emission and methane oxidation. Waste Management & Research. 19: 126-143.

Corbett, D.R., W.C. Burnett, J.P. Chanton. 2001. Submarine groundwater discharge: an unseen yet potentially important coastal phenomenon. SGEB publication #54, Florida Seagrass Program.

88\*de Boer, J. Z., J. R. Hale and J. Chanton. 2001. New evidence for the geological origins of the ancient Delphic oracle, (Greece). Geology, 29, 707-710.

87\*Proctor, L.M., E. Toy, L. Lapham and J. Cherrier and J. Chanton. 2001. Enhancement of orimulsion biodegradation through the addition of natural marine carbon substrates. Environmental Science and Technology, 35, 1420-1424.

86\*Siegel, D.I., Chanton, J.P., Glaser, P.H., Chasar, L.S. & Rosenberry, D.O. 2001. Estimating methane production rates in bogs and landfills by deuterium enrichment of pore water. Global Biogeochem. Cycles, Vol. 15, No.4, p.967-977..

85\*Striegl, R.G., P. Kortelainen, J.P. Chanton, K.P. Wickland, G.C. Bugna, M. Rantakari. 2001. Carbon dioxide partial pressure and  $^{13}\text{C}$  content of North Temperate and Boreal Lakes at Spring Ice Melt. Limnology and Oceanography, 46 (4), 941-945.

84\*Top, Z., L.E. Brand, R.D. Corbett, W. Burnett, and J. Chanton, 2001. Helium and radon as tracers of groundwater input into Florida Bay. Journal of Coastal Research, 17, No.4, 859-868.

83\*Whiting, G.J. and J.P. Chanton. 2001. Greenhouse Carbon Balance of Wetlands: Methane Emission versus Carbon Sequestration. Tellus B, 53, 521-528.

Diot, M., J. Bogner, J. Chanton, M. Guerbois, I. Hebe, Y. Moreau le Golvan, K. Spokas and A. Tregoures. LFG Mass balance: a key to optimize LFG recovery. Proceedings of the Eighth International Waste Management and Landfill Symposium, 1-5 October, 2001. S. Margherita do Pula, Sardinia, Italy, 2001a.

Diot, M. Y. Moreau Le Golvan, T. Watermolen, J. Bogner, K. Spokas, A. Tregoures, J. Chanton. Using a landfill mass balance model for examining methane pathway field measurements at landfills. Proceedings of the SWANA sixth annual landfill symposium (June 18-20, 2001, San Diego, California, 2001b).

## 2000

82\*Burnett, W.C., Glenn, C.R., Yeh, C.C., Schultz, M., Chanton, J., and Kashgarian, M. 2000. New U-series, AMS  $^{14}\text{C}$ , and stable isotope studies of recent phosphatic "protocrusts" from the Peru margin. In: Authigenic Marine Minerals: From Global to Microbial, C.R. Glenn, L. Prévôt-Lucas, and J. Lucas, J (Eds.), SEPM Special Publication No. 66, p. 163-183.

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**I. RESEARCH FUNDING****Currently Active Projects.**

**National Science Foundation.** with Bill Burnett and Bill Hu. Assessing the Driving

Forces of Submarine Groundwater Discharge. 09/01/2005 to 8/31/08, Total, \$450,408

**National Science Foundation.** with Behzad Mortazavi. Ecosystem-Respired CO<sub>2</sub> in Southeastern Pine Forests. 03/01/04 – 02/28/07 Total, \$395,736.

**National Science Foundation.** with Y. Wang. Technician Support for the Stable Isotope Laboratory at Florida State University – Phase I, 1/1/06 to 12/31/09. Total, \$228,526.

**National Science Foundation.** With Tarek Abichou. Inexpensive Biocover and Biofilter Approaches for Effective Reduction of Methane Emissions from Landfills 10/1/03 to 09/30/07. Total. \$389,454

**US Department of Energy** via National Institute for Global Environmental Change. With Behzad Mortazavi. Carbon isotopic studies on assimilated and ecosystem respired CO<sub>2</sub> in a SE pine forest. 10/1/04 to 9/30/07. Total, \$161,000.

**US Department of Energy** via University of Mississippi. Coupling of continuous geochemical and sea floor acoustic measurements. Gulf of Mexico Gas Hydrate Research Consortium. 10/1/04 to 6/30/07. Total, \$314,495.

**US EPA,** Gulf of Mexico Program. With W. Burnett. Assessment of Groundwater Discharge and Sewage Impacts into Sarasota Bay and Suwannee River Estuary via Rapid Marine Reconnaissance, Remote Sensing, and Tracer Methods. From March, 2002 to March, 2007. Total, \$175,243.

**Florida Department of Health.** Study of Onsite sewage treatment and disposal in karst areas, phase II. \$41,569. from 9/1/05 to 8/31/07.

### **Completed Projects.**

**Florida Dept. of Environmental Protection.** With Tarek Abichou. Use of recycled materials to reduce odors from landfills. 10/1/05 to 9/30/06. Total, \$165,000.

**Florida Dept. of Environmental Protection** With Tarek Abichou. via Florida Center for Solid and Hazardous Waste Management. Bio-reactive cover systems: inexpensive approaches for mitigating methane emission from landfills. 09/01/03 - 08/31/06. Total, \$150,000.

**National Science Foundation.** with Yang Wang, Acquisition of a stable isotope mass spectrometer, equipment grant, \$315,000 04/01/03 - 03/31/04 FSU

**US Department of Energy** Monitoring biogeochemical processes controlling hydrate formation, decomposition and composition in the Gulf of Mexico. From Feb 2002 to Sept. 2003. \$71,000.

**NOAA Seagrant** With W. Burnett. Assessment of sewage impacts via groundwater discharge into two coastal bays. From Feb, 2002 to Dec 2004. \$119,873.

**National Science Foundation.** with Gary Whiting, Methane cycling in permafrost regions. \$600,000. from March 2001 to February 2004.

**National Science Foundation.** Acetate biogeochemistry in northern wetlands: Implications for

methane formation during climate change. FSU share, \$115,000, from 3/01 to 2/04.

**Florida DEP** with W. Burnett, PI. Assessment of groundwater discharge into Lake Barco via Radon Tracing. Florida DEP. \$40,797 from November 1, 2001 to October 30, 2002.

**Florida Department of Health.** Study of Onsite sewage treatment and disposal in karst areas. \$70,569. 3/1/02 to 8/31/04.

**US Department of Energy** Controls of net ecosystem exchange at an old field, a pine plantation and a hardwood forest under identical climatic and edaphic conditions. \$74,928/year for three years, 9/00-8/03.

**NOAA/National Marine Fisheries.** with C. Koenig, F. Coleman. Past and Present Trophic Structure of Florida Bay. \$94,000/year for two years, 9/00 to 8/02.

**Florida Department of Health.** Determination of an Onsite Sewage System Setback Distance for Seasonally Inundated Areas. \$86,059, from August 99 to December 2000.

**NOAA Seagrass.** With W. Burnett. Tracer techniques to evaluate rates of non-point source pollution from Barrier Islands to surface water. from Feb 1, 2000 for 2 years \$114,833.

**US-EPA.** Great Waters EPA program Nitrogen Isotopic studies on Sarasota Bay, watershed and airshed. \$60,000 for March, 1999 to July, 2001.

**US Department of Energy.** Isotopic studies at Ameriflux tower sites: Estimating CO<sub>2</sub> exchange and Anthropogenic CH<sub>4</sub> total, \$247,000. July 1, 1998 to June 30, 2001.

**Florida DEP.** Nitrogen Stable Isotopes for Tampa Bay Atmospheric Deposition Study. Total, \$90,000. from July, 1998 to November 30, 1999.

**US-EPA.** Use of Natural and Artificial tracers to detect the subsurface flow of contaminated groundwater in the Florida Keys, \$74,949/year. from October 1, 1997 for two years.

**US Department of Energy.** with L. Proctor, A molecular study of denitrification and nitrogen fixation in relation to nutrient loading in the Coastal zone. from 8/97 to 8/00, Total, \$353,833

**Florida Power and Light Corporation.** with L. Proctor Biodegradation and Environmental Impacts of Orimulsion. \$225,000, January, 1997 to August, 1998.

**NOAA,** with W. Burnett. Role of Groundwater in the Nutrient Budget of Florida Bay. from June 1, 1997 to June 30, 2000. Total, \$118,221.

**US Department of Energy.** With L. Robinson (et. al) and Florida A&M University. Marine Biotechnology and Marine Estuarine Environmental Science Research Program at Florida A&M University. DOE. Total grant 5.4 million dollars over 5 years, starting fall, 1997.

**NOAA.** with F. Coleman and Chris Koenig. Past and present trophic structure of Fla. Bay seagrass communities. NOAA, June 1, 1997 to June, 2000. \$193,000.

**National Science Foundation.** Hydrogeologic Drivers for the Carbon dynamics in Large Peatlands. With P. Glaser and D. Seigel. Chanton share, total, \$185,000. from April, 1997 to March, 00.

**NOAA-NURC.** (National Undersea Research Center). With W. Burnett In situ observations and sampling of contaminated groundwater in the Florida Keys \$23,000 over 2 years + 3 weeks boat time and 3 weeks condo time in the keys/year.

**US-EPA.** Tracing submarine groundwater discharge. with W. Burnett and R. Iverson. Total, \$99,000 from October 1, 1995 to September 29, 1997.

**US-DOE-NIGEC.** Isotopic Signature of atmospheric methane at NIGEC tower sites. Total, \$208,000. From October, 1995 to June 31, 1998.

**US-EPA.** Isotopic signatures of Anthropogenic Methane: Landfills and Coal mines. Total, \$106,000, from October, 1995 to September, 1998.

**Florida Department of Environmental Protection** (WR052), "Preliminary Estimates of Groundwater Inputs to Florida Bay", with W. Burnett, 2/28/95-11/1/95, \$25,000.

**NOAA Sea Grant** - "Significance of Submarine Groundwater Discharge on Seagrass Distribution, Biomass, and productivity", (with W. Burnett and R. Iverson), 3/1/95-2/28/98, Total, \$152,362.

**USAir Force via Batttell.** Stable Isotopic Analysis of Carbon Compounds, Soil Organic Carbon, Methane and Carbon dioxide in the Columbus AFB Aquifer as Part of the natural attenuation experiment, \$172,000 Sept. 94 to Sept. 98.

**NASA.** Control on methane emissions from vegetated wetlands: substrate, oxidation and transport. Oct 1, 1993 to Sept. 30, 1997. \$150,000. (50k/year).

**NASA.** with J.E. Edwards. Resolving a major discrepancy regarding rhizospheric methane oxidation. Total, \$66,000, September, 1993 to August, 1997.

**Virginia Institute of Marine Science.** Support for Jennifer Cherrier, VIMS, Total, \$58,000. December, 1994 to 96.

**N.W. Florida Water Management District.** Stable isotope tracing of food chains in Apalachicola Bay. Total, \$158,507 1992-1996.

**US Department of Energy,** via National Institute of Global Environmental Change. The role of plants in regulating CH<sub>4</sub> emission, Total, \$194,000, 1992-1994.

**National Science Foundation.** An Isotope ratio mass spectrometer for Florida State University--NSF equipment grant, with J. Bauer, W. Burnett, W. Cooper, J. Cowart, A. Arnold, S. Wise and others. NSF equipment grant, \$125,000. 1992-1993

**National Science Foundation.** Tracing submarine groundwater discharge. With W. Burnett and G. Weatherly, Total, \$364,000. 1991-1994.

**National Science Foundation.** Resting eggs of marine copepods: How long do they survive and what is the effect of anoxia and hydrogen sulfide on their viability. With Nancy Marcus, \$300,000. 1992-1996.

**Earthwatch,** Groundwater seepage in the Gulf of Mexico. With W. Burnett, \$30,000. 1992-94.

**NASA.** Stable Isotope tracing of methane emission and oxidation in a Louisiana wetland. Total, \$51,000. 1991-1992.

**NOAA.** The role of vegetation-biomass, leaf surface area and carbon fixation rate in controlling methane flux for terrestrial wetlands –total, \$108,000, 1991-1992.

**NASA.** Carbon and hydrogen isotopic composition of methane emitted from subtropical to Arctic wetlands: modifications by dominate macrophytes and anthropogenic disturbance. Total. \$196,000, 1989-1992

**Petroleum Research Fund.** Investigations of isotope fractionation in the diffusion of methane across the water-air interface and through aqueous solution. Total, \$\$18,000, 1989-1991.

**FSU Foundation.** Sulfur isotopic study of Scan Bay sediments, \$1,440, 1989.

**FSU Foundation.** Methane emission from northern wetlands, , \$2,500, 1990.

**Florida Institute of Oceanography.** Geological Oceanography Training Cruise. . \$5,190 each year, 1990, 1991, 1992

**AT UNC Chapel Hill:**

**UNC university research council.** Isotopic Studies of the West Florida Escarpment Sulfur Cycle. \$1,500, 1987.

**National Science Foundation.** With C. Paull, C. Martens. Geological/geochemical studies at the sulfide seep sites at the base of the West Florida Escarpment, Gulf of Mexico. \$60,000, 1988.

**National Science Foundation.** Florida escarpment: Genesis, Geomorphology, and Seepage Processes. Total. \$60,000, 1985-1987.

**NASA.** Seasonal variations in isotopic signatures of methane produced in organic rich environments. From Total. \$210,000, 1985-1988.

**NASA.** Radon tracing of biogenic gas fluxes from coastal wetlands and tidal freshwater estuaries. Total. \$200,000, 1988-1990.

**J. Teaching: Courses taught last 8 years**

Fall 06 OCC5415 Marine Geochemistry 100%, 12 students.

Spring 06 OCE 4930, 5930 Current topics in Environmental Science, Stable Isotope Geochemistry.

Fall 05 OCE 1001. Elementary Oceanography

Spring 05 Stable Isotope Geochemistry

Fall 04 OCC5415 Marine Geochemistry 100%, 8 students.

Spring 04 OCE 4930, 5930 Current topics in Environmental Science, 100%, 30 students  
OCG 5050 Geological Ocean 25% 8 students  
Special topics

Fall 03 1001 \_ of 2 sections, 500 students

Spring 03 OCE 4930, 5930 Current topics in Environmental Science, 100%, 44 students

Fall 02 OCC 5415 Marine Geochemistry, 100%, 11 students

Spring 02 OCG 5050 Geological Ocean 25% 10 students  
OCE 4930, 5930 Current topics in Environmental Science, 100%, 42 students

Fall 01 1001 \_ of 2 sections, 500 students

Spring 01 OCE 4930, 5930 Current topics in Environmental Science, 100%, 44 students

Fall 00 on sabbatical

Spring 00 OCG 5050 Geological Ocean 25% 8 students  
OCE 4930, 5930 Current topics in Environmental Science, 100%  
40 students

Fall 99 1001 \_ of 2 sections, 500 students

Spring 99 OCG 5050 Geological Ocean 50%  
OCG 4050 Geo Ocean 50%

Fall 98 1001 \_ of 2 sections, 500 students

Spring 98 OCC 5415 Marine Geochemistry 50%, 12 students  
OCE 1001H 50%, 8 students

Fall 97 1001 \_ of 2 sections, 500 students

Spring 97 OCC 5415 Marine Geochemistry 12 students  
OCE 1001H 50%, 8 students