

## FRANCIS JOSEPH SANSONE

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### Education

- 1973 B.S. in Biology, Rensselaer Polytechnic Institute, Troy, NY 12180 (Senior Thesis under L.S. Clesceri, Advisor).
- 1976 M.S. in Marine Science, University of North Carolina at Chapel Hill, Chapel Hill, NC 27514 (under Christopher S. Martens, Advisor).
- 1980 Ph.D. in Marine Science, University of North Carolina at Chapel Hill, Chapel Hill, NC 27514 (under Christopher S. Martens, Advisor). Major area: Marine Organic Geochemistry

### Professional History

- 1980 - 1987 Assistant Professor, Department of Oceanography/Hawaii Institute of Geophysics, University of Hawaii at Manoa
- 1981 Appointed to Graduate Faculty, University of Hawaii at Manoa
- 1987 - 1998 Associate Professor, Department of Oceanography/Hawaii Institute of Geophysics, University of Hawaii at Manoa
- 1991 Awarded Tenure, University of Hawaii at Manoa
- 1991 - 1996 Head, Marine Geology & Geochemistry Division, Department of Oceanography,  
1999 - 2006 University of Hawaii at Manoa  
2011 - 2014
- 1998 - Present Professor, Department of Oceanography, University of Hawaii at Manoa
- 2001 - 2003 University of Hawaii at Manoa Faculty Senate Executive Committee; Secretary and Parliamentarian
- 2006 - 2010 Department Chair, Department of Oceanography, University of Hawaii at Manoa  
2016 - 2017

### Professional Societies

- American Geophysical Union  
American Society for Microbiology  
Association for the Sciences of Limnology and Oceanography

## PUBLICATIONS

### Refereed Publications (Supervised student/postdoc)

Sansone, F.J., H.L. Spalding, and C.M. Smith. 2017. Sediment biogeochemistry of mesophotic meadows of calcifying macroalgae. *Aquatic Geochem.* 23: 141-164. DOI 10.1007/s10498-017-9315-9.

Fram, J.P., G.P. Pawlak, F.J. Sansone, B.T. Glazer and A.K. Hannides. 2014. Miniature thermistor chain for determining surficial sediment porewater advection. *Limnol. Oceanogr.: Methods* 12: 155-165.

Hannides, A.K., B.T. Glazer, and F.J. Sansone. 2014. Extraction and quantification of microphyto-benthic chlorophyll *a* within calcareous reef sands. *Limnol. Oceanogr.: Methods* 12: 126-138.

Fogaren, K.E., F.J. Sansone, and E.H. DeCarlo. 2013. Porewater temporal variability in a wave-impacted permeable nearshore sediment. *Mar. Chem.* 149: 74–84, doi:10.1016/j.marchem.2012.12.005.

Tomlinson, M.S., E.H. De Carlo, M.A. McManus, G. Pawlak, G.F. Steward, F.J. Sansone, O.D. Nigro, R.E. Timmerman, J. Patterson, S. Jaramillo, and C.E. Ostrander. 2011. Characterizing the effects of two storms on the coastal waters of O'ahu, Hawai'i, using data from the Pacific Islands Ocean Observing System. *Oceanography* 24(2):182–199, doi:10.5670/oceanog.2011.38.

Gao, Z., X. Wang, A.K. Hannides, F.J. Sansone, and G. Wang. 2011. Impact of redox-stratification on the diversity and distribution of bacterial communities in sandy reef sediments in a microcosm. *Chin. J. Oceanol. Limnol.* 29: 1209-1223.

Sansone, F.J., G. Pawlak, T. Stanton, M.A. McManus, B.T. Glazer, E.H. DeCarlo, M. Bandet, J. Sevadjan, K. Stierhoff, C. Colgrove, A.B. Hebert, and I.C. Chen. 2008. Kilo Nalu: Physical/ biogeochemical dynamics above and within permeable sediments. *Oceanography* 21: 120-125.

Sansone, F.J., H.L. Spalding, and C.M. Smith. 2008. Submersible-operated porewater sampler for sandy sediments. *Limnol. Oceanogr.: Methods* 6: 119–125.

Hebert, A. B., F.J. Sansone, and G.R. Pawlak. 2007. Tracer dispersal in sandy sediment porewater under enhanced physical forcing. *Cont. Shelf Res.* 27: 2278–2287.

Sansone, F.J., and J. R. Smith. 2006. Rapid mass wasting following nearshore submarine volcanism on Kilauea Volcano. *J. Volcanol. Geotherm. Res.* 151: 133-139.

Gharib, J., F.J. Sansone, J.A. Resing, E.T. Baker, J.E. Lupton and G.J. Massoth. 2005. Methane dynamics in hydrothermal plumes over a superfast spreading center: East Pacific Rise, 27.5-32.3°S. *J. Geophys. Res.*, 110, DOI:10.1029/2004JB003531.

Berelson, W.M., M. Prokopenko, F.J. Sansone, A.W. Graham, J. McManus and J.M. Bernhard. 2005. Anaerobic diagenesis of silica and carbon in continental margin sediments: Discrete zones of TCO<sub>2</sub> production. *Geochim. Cosmochim. Acta.* 69: 4611-4629.

Hey, R.N., E. Baker, D. Bohnenstiehl, G. Massoth, M. Kleinrock, F. Martinez, D. Naar, D. Pardee, J. Lupton, R. Feely, J. Gharib, J. Resing, C. Rodrigo, F. Sansone, and S. Walker. 2004. Tectonic and volcanic segmentation and controls on hydrothermal venting along earth's fastest active seafloor spreading system, EPR 27°-32°S. *Geochemistry, Geophysics, Geosystems* 5. DOI: 10.1029/2004GC000764

Sansone, F.J., A.W. Graham, and W.M. Berelson. 2004. Methane along the western Mexican margin. *Limnol. Oceanogr.* 49: 2242-2255.

Sansone, F.J., C.R. Benitez-Nelson, E.H. DeCarlo, J.A. Resing, S. M. Vink, J.A. Heath, and B.J. Huebert. 2002. Geochemistry of atmospheric aerosols generated from lava-seawater interactions. *Geophys. Res. Lett.* 29. DOI: 10.1029/2001GL013882.

Resing, J.A. and F.J. Sansone. 2002. The chemistry of lava-seawater interactions II: The elemental signature. *Geochim. Cosmochim. Acta* 66: 1925-1941.

Popp, B.N., M.B. Westley, S. Toyoda, T. Miwa, J.E. Dore, N. Yoshida, T.M. Rust, F.J. Sansone, M.E. Russ, N.E. Ostrom, and P. Ostrom. 2002. Nitrogen and oxygen isotopomeric constraints on the origins and sea-to-air flux of N<sub>2</sub>O in the oligotrophic subtropical North Pacific gyre. *Global Biogeochem. Cycles* 16. DOI: 10.1029/2001GB001806.

Baker, E.T., R.N. Hey, J.E. Lupton, J.A. Resing, R.A. Feely, J.J. Gharib, G.J. Massoth, F.J. Sansone, M. Kleinrock, F. Martinez, D.F. Naar, C. Rodrigo, D. Bohnenstiehl, and D. Pardee. 2002. Hydrothermal venting along Earth's fastest spreading center: East Pacific Rise, 27.5°-32.3°S. *J. Geophys. Res.* 107. DOI: 10.1029/2001JB000651.

Sansone, F.J., B.N. Popp, A. Gasc, T.M. Rust, and A.W. Graham. 2001. Highly elevated methane in the eastern tropical North Pacific and associated isotopically enriched fluxes to the atmosphere. *Geophys. Res. Lett.* 28, 4567-4570.

Trichet, J., C. Défarge, J. Tribble, G. Tribble, and F. Sansone. 2001. Christmas island lagoonal lakes, models for the deposition of carbonate-evaporite-organic laminated sediments. *Sed. Geol.* 140: 177-189.

Boudreau, B.P., M. Huettel, S. Forster, R. A. Jahnke, A. McLachlan, J. J. Middelburg, P. Nielsen, F. Sansone, G. Taghon, W. Van Raaphorst, I. Webster, J.M. Weslawski, P. Wiberg, and B.Sundby. 2001. Permeable marine sediments: overturning an old paradigm. *Eos, Trans. Am. Geophys. Union* 82: 133-136.

Falter, J.L., and F.J. Sansone. 2000. Shallow pore water sampling in reef sediments. *Coral Reefs* 19: 93-97.

Wheat, C.G., H.W. Jannasch, J.N. Plant, C.L. Moyer, F.J. Sansone, and G.M. McMurtry. 2000. Continuous sampling of hydrothermal fluids from Loihi Seamount after the 1996 event. *J. Geophys. Res.* 105:

19,353-19,367.

Holmes, M.E., F.J. Sansone, T.M. Rust, and B.N. Popp. 2000. Methane production, consumption and air-sea exchange in the open ocean: An evaluation based on carbon isotopic ratios. *Global Biogeochem. Cycles* 14: 1-10.

Falter, J.L., and F.J. Sansone. 2000. Hydraulic control of pore water geochemistry within the oxic-suboxic zone of a permeable sediment. *Limnol. Oceanogr.* 45: 550-557.

Fletcher, C., J. Anderson, K.A. Crook, G. Kaminsky, P. Farcombe, C.V. Murray-Wallace, F. Sansone, D.B. Scott, S. Riggs, A. Sallenger, I. Shennan, E.R. Thieler, and J. F. Wehnmiller. 2000. Coastal sedimentary research examines critical issues of national and global priority. *Eos, Trans. Am. Geophys. Union* 81: 181,186.

Sansone, F.J., M.E. Holmes, and B.N. Popp. 1999. Methane stable isotopic ratios and concentrations as indicators of methane dynamics in estuaries. *Global Biogeochem. Cycles* 13: 463-474.

Haberstroh, P.R. and F.J. Sansone. 1999. Reef framework diagenesis across wave-flushed oxic-suboxic-anoxic transition zones. *Coral Reefs* 18: 229-240.

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Sansone, F.J., M.J. Mottl, E.J. Olson, C.G. Wheat, and M.D. Lilley. 1998. CO<sub>2</sub>-depleted fluids from mid-ocean ridge-flank hydrothermal springs. *Geochim. Cosmochim. Acta* 62: 2247-2252.

Dore, J.E., B.N. Popp, D.M. Karl, and F.J. Sansone. 1998. A large source of atmospheric nitrous oxide from subtropical North Pacific surface waters. *Nature* 395: 63-66.

Sansone, F.J., T.R. Rust, and S.V. Smith. 1998. Methane distribution and cycling in Tomales Bay, California. *Estuaries* 21: 66-77.

Mottl, M.J., G. Wheat, E. Baker, N. Becker, E. Davis, R. Feely, A. Grehan, D. Kadko, M. Lilley, G. Massoth, C. Moyer, and F. Sansone. 1998. Warm springs discovered on 3.5 Ma-old crust, eastern flank of the Juan de Fuca Ridge. *Geology* 26: 51-54.

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Reeburgh, W.S., A.I. Hirsch, F.J. Sansone, B.N. Popp, and T.M. Rust. 1997. Carbon kinetic isotope effect accompanying microbial oxidation of methane in boreal forest soils. *Geochim. Cosmochim. Acta* 61: 4761-4767.

Wheat, C.G., M.J. Mottl, E.T. Baker, R.A. Feely, J.E. Lupton, F.J. Sansone, J.A. Resing, G.T. Lebon, and N.C.

Becker. 1997. Chemical plumes from low-temperature hydrothermal venting on the eastern flank of the Juan de Fuca Ridge. *J. Geophys. Res.* 102: 15,433-15,446.

Loihi Science Team. 1997. Rapid response to submarine activity at Loihi Seamount, Hawaii. *Eos, Trans. Am. Geophys. Union* 78: 229-233.

Resing, J.A. and F.J. Sansone. 1996. Al and pH anomalies in the Manus Basin reappraised: comments on the paper by T. Gamo *et al.*, "Hydrothermal plumes in the eastern Manus Basin, Bismark Sea: CH<sub>4</sub>, Mn, Al, and pH anomalies". *Earth. Planet. Sci. Lett.* 43: 1867-1872.

Defarge, C., J. Trichet, A.-M. Jaunet, M. Robert, J. Tribble, and F.J. Sansone. 1996. Texture of modern microbial sediments revealed by cryo-scanning electron microscopy. *J. Sed. Petrol.* 66: 935-947.

Sansone, F.J. and J.A. Resing. 1995. Hydrography and geochemistry of sea-surface hydrothermal plumes resulting from Hawaiian coastal volcanism. *J. Geophys. Res. - Oceans.* 100: 13,555-13,569.

Mottl, M.J., F.J. Sansone, C.G. Wheat, J.A. Resing, E.T. Baker, and J.E. Lupton. 1995. Manganese and methane in hydrothermal plumes along the East Pacific Rise, 8°40' to 11°50'N. *Geochim. Cosmochim. Acta.* 59: 4147-4165.

Popp, B.N., F.J. Sansone, T.M. Rust, and D.A. Merritt. 1995. Determination of concentration and carbon isotopic composition of dissolved methane in sediments and nearshore waters. *Anal. Chem.* 67: 405-411.

Sansone, F.J., J.T. Hollibaugh, S.M. Vink, R.M. Chambers, S.B. Joye, and B.N. Popp. 1994. Diver-operated piston corer for nearshore use. *Estuaries* 17: 716-720.

Baker, E.T., R.A. Feely, M.J. Mottl, F.J. Sansone, C.G. Wheat, J.A. Resing, and J.E. Lupton. 1994. Hydrothermal plumes along the East Pacific Rise, 8°40' to 11°50'N: Plume distribution and relationship to the apparent magmatic budget. *Earth Planet. Sci. Lett.* 128: 1-17.

Tribble, G.W., M.J. Atkinson, F.J. Sansone, and S.V. Smith. 1994. Reef metabolism and endo-upwelling in perspective. *Coral Reefs* 13: 199-201.

Sansone, F.J. 1993. Global carbon dioxide and methane fluxes from shallow-water marine carbonate frameworks. In: *The Biogeochemistry of Global Change: Radiative Trace Gases*, R.S. Oremland (ed.). Chapman Hall, N.Y. pp. 521-529.

Sansone, F.J., J.P. Chanton, P.R. Haberstroh, and R. Bozeat. 1993. Methane cycling in coral reef frameworks. In: *Trends in Microbial Ecology*, R. Guerrero and C. Pedros-Alio (eds.). Spanish Soc. Microbiol. pp. 157-162.

Defarge, C., J. Trichet, F.J. Sansone, J. Tribble, M. Robert, and A.-M. Jaunet. 1993. Nouvelles preuves de l'intervention de réseaux organiques hérités de procaryotes dans la microstructuration et la calcification

des stromatolites actuels. Implications paléontologiques. C. R. Acad. Sci. Paris 316 (Série II): 1107-1114.

Lupton, J.E., E.T. Baker, M. Mottl, F.J. Sansone, C.G. Wheat, J.A. Resing, G.J. Massoth, C. Measures, and R.A. Feely. 1993. Chemical and physical diversity of hydrothermal plumes along the East Pacific Rise, 8°45'N to 11°50'N. *Geophys. Res. Lett.* 20: 2913-2916.

Sansone, F.J. 1992. Fuel cell hydrogen sensor for marine applications. *Mar. Chem.* 37: 3-14.

Tribble, G.W., F.J. Sansone, R.W. Buddemeier, and Y.-H. Li. 1992. Hydraulic exchange between a coral reef and surface seawater. *Geol. Soc. Amer. Bull.* 104: 1280-1291.

Sansone, F.J., J.A. Resing, G.W. Tribble, P.N. Sedwick, and K. Hon. 1991. Lava-seawater interactions at shallow-water submarine lava flows. *Geophys. Res. Lett.* 18: 1731-1734.

Sansone, F.J., C.C. Andrews, G. W. Tribble, and J.P. Chanton. 1990. Anaerobic diagenesis within Recent, Pleistocene, and Eocene marine carbonate frameworks. *Sedimentology* 37: 997-1009.

Tribble, G.W., F.J. Sansone and S.V. Smith. 1990. Stoichiometric modeling of carbon diagenesis within a coral reef framework. *Geochim. Cosmochim. Acta* 54: 2439-2449.

Goo, R.K., S. Kansako, J. Dalbec, K. Yanagihara, and F. Sansone. 1990. Library searching of analog MS data on an ion trap data system. *Amer. Lab.* 22: 102-106.

Sansone, F.J., G.W. Tribble and C.C. Andrews. 1989. Time and space scales of anaerobic diagenesis within a coral reef framework. *Proc. Sixth Int. Coral Reef Symp.* 3: 367-372.

Tribble, G.W., F.J. Sansone, Y.-H. Li, S.V. Smith and R.W. Buddemeier. 1989. Material fluxes from a reef framework. *Proc. Sixth Int. Coral Reef. Symp.* 2: 577-582.

Sansone, F.J., S.V. Smith, J.M. Price, T.W. Walsh, T.H. Daniel and C.C. Andrews. 1988. Long-term variation in seawater composition at the base of the thermocline. *Nature* 332: 714-717.

Sansone, F.J., C.C. Andrews, R.W. Buddemeier and G.W. Tribble. 1988. Well point sampling of reef interstitial water. *Coral Reefs* 7: 19-22.

Sansone, F.J., C.C. Andrews and M.Y. Okamoto. 1987. Adsorption of short-chain organic acids in marine sediments. *Geochim. Cosmochim. Acta.* 51: 1889-1896.

Sansone, F.J., 1986. Depth distribution of short-chain organic acid turnover in Cape Lookout Bight sediments. *Geochim. Cosmochim. Acta.* 50: 99-105.

Sansone, F.J., and T.J. Kearney. 1985. Chlorination kinetics of surface and deep tropical seawater. In: *Water Chlorination: Environmental Impact and Health Effects*, Vol. 5, Chap. 60; R.L. Jolley et al., Eds. pp. 755-762.

Kearney, T.J., and F.J. Sansone. 1985. Analysis and formation mechanisms of mixed N-halogenated methylamines. In: Water Chlorination: Environmental Impact and Health Effects, Vol. 5, Chap. 76; R.L. Jolley et al., Eds. pp. 965-974.

Sansone, F.J., 1985. Methane in the reef flat porewaters of Davies Reef, Great Barrier Reef, Australia. Proc. Fifth Int. Coral Reef Congress. 3: 415-419.

Sansone, F.J., and C.S. Martens. 1982. Volatile fatty acid cycling in organic-rich marine sediments. Geochim. Cosmochim. Acta 46: 1575-1589. **1983 Best Paper Award in Organic Geochemistry, The Geochemical Society.**

Sansone, F.J., and C.S. Martens. 1981. Determination of volatile fatty acid turnover rates in organic-rich marine sediments. Mar. Chem. 10: 233-248.

Sansone, F.J., and C.S. Martens. 1981. Methane production from acetate and associated methane fluxes from anoxic coastal sediments. Science 211: 707-709.

Sansone, F.J. and C.S. Martens. 1978. Methane oxidation in Cape Lookout Bight, N.C. Limnol. Oceanogr. 23: 349-355.

#### TEACHING

Team-taught courses every year:

OCN 105 (Sustainability in a Changing World) – Fall and Spring

OCN 401 (Biogeochemical Systems) – Fall

OCN 623 (Chemical Oceanography) – Spring