

Michela Arnaboldi

Education

Ph.D. 2006, Oceanography, Marine Geology and Geological Chemistry, University of Michigan, Ann Arbor

Dissertation title: *Paleoceanographic processes associated with the deposition of organic-rich sapropels and black shales* (Advisor: Philip A. Meyers)

M.S. 2002, Oceanography, Marine Geology and Geological Chemistry, University of Michigan, Ann Arbor

Thesis title: *Geochemical evidence for paleoclimatic variations during deposition of two Late Pliocene sapropels from the Vrica Section, Calabria* (Advisor: Philip A. Meyers)

'Laurea' (M.S.) 2000, Marine biology, University of Ancona, Italy

Thesis title: *Geochemical study of sapropel layer c at the Vrica Section (Plio-Pleistocene) Crotona, (Calabria)* (Advisor: Massimo Sarti)

Research Interests

Paleoceanography, marine geochemistry, organic geochemistry, paleoproductivity, biogeochemical cycles, marine nitrogen cycle, role of nitrogen fixation in the ocean

Teaching Experience

2006-present Lecturer II University of Michigan

- EARTH 100 - Coral Reefs
- EARTH 104 - Ice Ages, Past and Future
- EARTH 110 - Evolving Oceans
- EARTH 119 - Introductory Geology
- EARTH 151 - Ice Ages, Past and Future (Freshmen Seminar)
- EARTH 156 - Coral Reef Dynamics (Freshmen Seminar)
- EARTH 222 - Introductory Oceanography
- EARTH 223 - Introductory Oceanography Lab
- EARTH 255 – Earth & Space Sciences for Elementary Educators
- EARTH 311 - Geology of Michigan
- EARTH 417 - Geology of the Great Lakes
- EARTH 421 - Principles of Physical Oceanography
- EARTH 452 - Cenozoic Stratigraphy and Global Change
- ENVIRON 111- Global Change- The sustainability challenge
- ENVIRON 300-177 – UMBS- Global Change

- 2010 Teaching Assistant** University of Michigan. Geology of Michigan GS311
- 2001-2005 Substitute lecturer** University of Michigan. Occasional substitute lecturer in a number of classes such as Introductory Oceanography GS222, History of the Oceans GS110, Earth and Life through Time GS115
- 2006 Grader I** University of Michigan, GS 205
- 2005 Graduate Student Instructor** University of Michigan, GS 100, 107, 110, 114, 115 Mini-Courses. Instructor responsible in assisting professor in the classroom and in the evaluation of students' performance
- 2004 Organizer of Soft-Rock Seminar**, GS 531
- 2001-2004 Graduate Student Instructor** University of Michigan, GS 223, Introductory Oceanography lab instructor. Instructor responsible for the content, instruction, and evaluation of students' performance (5 semesters total)

Student Mentoring

- 2016- Supervisor of Abrams Sustainability Fellows** Faculty mentor of 3 undergraduate students assisting in incorporating sustainability themes in existing courses in such a way as to encourage critical thinking about sustainability problems and potential solutions.
- 2001-2005 Research supervisor** Undergraduate Research Opportunities Program, University of Michigan. Supervision of undergraduate students (9) in laboratory setting. Individualized projects related to paleoceanography/marine geology of Mediterranean Sea and Atlantic Ocean
- 2001-2005 Laboratory supervisor** University of Michigan. Supervision of graduate students (3) in the Oceanography Laboratory

Field Trip

2013-2014 Laurentian Field Trip (Earth 417). This is a trip to the NOAA/GLERL Lake Michigan Field Station, in Muskegon. Students take part in an oceanographic cruise on Lake Michigan during which they can observe and carry on, first hand, real operations and measurements necessary to collect oceanographic and limnologic data.

Other Experience

2011-Development of New Set of Laboratory Cycles (Earth 223). Under the supervision of Prof Hendy and in collaboration with the Department of Education, I participated in the development of lab exercises in order to shift this course to a constructivist, inquiry-based, integrated knowledge approach to student learning.

2016-Abrams Sustainability Seminar, University of Michigan. This seminar encourages faculty to integrate sustainability into the curriculum in LSA classes and improve the undergraduate learning experience.

Outreach

2014 'Fossils: What They Are and How We Can Make Them' Focus Study (Grades K-2)

Ann Arbor Open. A Focus Study is a class offering that students in K-8 grades select as a special interest focus for 60 minutes per day, for one week.

Research Experience

2003 Shipboard Geochemist Ocean Drilling Program Leg 210, *Newfoundland Basin*, 8 weeks, July-September, onboard the JOIDES Resolution

2000-2005 Graduate Student Research Assistant University of Michigan, Performing organic and inorganic geochemical analyses of marine sediment samples from the Mediterranean Sea and Atlantic Ocean

2000 Field Work University of Ancona, Sampling Tethyan Cenomanian black-shales from Antruiles Section, northeastern Dolomites, Italy

1998-1999 Graduate Student Università' di Ancona, Istituto di Scienze del Mare, Identifying and counting the Meiofauna of deep sediment samples from the Atacama Trench

Research Grants

2005 *Investigation of nitrogen-bound in diatoms in two Mediterranean sapropels.* Scott Turner Award in Earth Science, Department of Geological Science, University of Michigan, \$1,350

2004 *Patterns in Mediterranean sapropels: A multiproxy geochemical study of late Pliocene processional climate cycles.* Scott Turner Award in Earth Science, Department of Geological Science, University of Michigan, \$1,875

2003 *Multi-proxy geochemical characterization of mid-Cretaceous black shales in the Newfoundland Basin.* JOI- U.S.S.S.P., \$29,458. Titular PI: Philip A. Meyers (U of M)

2002 *Isotopic insights on sapropel formation mechanisms.* Scott Turner Award in Earth Science, Department of Geological Science, University of Michigan, \$1,200

2001 *Geochemical investigation of Mediterranean sapropels.* Scott Turner Award in Earth Science, Department of Geological Science, University of Michigan, \$1,200

Awards

2004-2005 Rackham Predoctoral Fellowship, University of Michigan

2004 GSA International Geologic Congress Travel Grant

2001, 2002, 2004, 2005 Scott Turner Research Grant, Department of Geological Sciences, University of Michigan

Peer-Reviewed Publications

Meyers, P.A., and **M. Arnaboldi**. 2008 Paleooceanographic implications of nitrogen and organic carbon isotopic excursions in mid-Pleistocene sapropels from the Tyrrhenian and Levantine Basins, Mediterranean Sea. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 266,112-118.

Gogou, A., I. Bouloubassi, V. Lykousis, **M. Arnaboldi**, P. Gaitani, and P.A. Meyers. 2007. Organic geochemical evidence of late glacial-Holocene climate instability in the north Aegean Sea. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 256,1-20.

Arnaboldi, M., and P.A. Meyers. 2007. Trace element indicators of increased primary production and decreased water-column ventilation during deposition of latest Pliocene sapropels at five locations across the Mediterranean Sea. *Palaeogeography, Palaeoclimatology, Palaeoecology*. In press.

Arnaboldi, M., Meyers, P.A. 2006. Data report: Multi-proxy geochemical characterization of OAE-related black shales at Site 1276, Newfoundland Basin. In Tucholke, B.E., Sibuet, J.-C., and Klaus, A. (Eds.), *Proc. ODP, Sci. Results*, 210: College Station, TX (Ocean Drilling Program), 1–18.
doi:10.2973/odp.proc.sr.210.102.2006

Arnaboldi, M., Meyers, P.A. 2006. Patterns of organic carbon and nitrogen isotopic compositions of latest Pliocene sapropels from six locations across the Mediterranean Sea. *Palaeogeogr., Palaeoclimatol., Palaeoecol.* 235, 149-167.

Meyers, P.A., **Arnaboldi, M.** 2005. Trans-Mediterranean comparison of geochemical paleoproductivity proxies in a mid-Pleistocene interrupted sapropel. *Palaeogeogr., Palaeoclimatol., Palaeoecol.* 222, 313-328.

Arnaboldi, M., Meyers, P.A. 2003. Geochemical evidence for paleoclimatic variations during deposition of two Late Pliocene sapropels from the Vrica Section, Calabria. *Palaeogeogr., Palaeoclimatol., Palaeoecol.* 190, 257-271.

Publications In Progress

Arnaboldi, M., Meyers, P.A. Multi-proxy geochemical characterization of Cretaceous black shales and their relation to Oceanic Anoxic Events at ODP Site 1276, Newfoundland basin.

Arnaboldi, M., Morigi, C., Giunta, S., Negri, A., Meyers, P.A. Carbon, oxygen, and nitrogen isotopic evidence for surface-water dilution during sapropel deposition in the expanded late Pliocene sequence at the Vrica Section, Calabria.

Pletsch, T., **Arnaboldi, M.**, Kus, J., Pross, J., Schoeder, G., Wehner, H. Hydrocarbon potential at the toe of the Newfoundland Margin (ODP Hole 1276A).

Presentations and Abstracts

Arnaboldi, M., and P.A. Meyers. 2007. Correspondence of Cretaceous black shales in the western North Atlantic Ocean to global oceanic anoxic events. 23rd International Meeting on Organic Geochemistry, September 9-14, Torquay, England.

Meyers, P.A., J.G. Yum, S.M. Bernasconi, and **M. Arnaboldi**. 2006. Carbon isotopic evidence and implications of surface ocean stratification during deposition of Cenomanian black shales in the Atlantic Ocean. Gordon Research Conference on Organic Geochemistry, August 6-11, Holderness, New Hampshire.

Arnaboldi, M., P.A. Meyers. 2005. Multi-proxy geochemical characterization of mid-Cretaceous black shales in the Newfoundland Basin. *EOS, Transactions American Geophysical Union*, 86(52), Fall Meeting Supplement, Abstract PP43B-0686.

Yum, J.-G., P.A. Meyers, S.M. Bernasconi, **M. Arnaboldi**. 2005. Paleoceanographic inferences from carbon and nitrogen isotopic compositions of Cenomanian black shales from DSDP/ODP Sites 367, 530, 603, 641, 1257-1261, and 1276 in the Atlantic Ocean. *EOS, Transactions American Geophysical Union*, 86(52), Fall Meeting Supplement, Abstract PP43B-0685.

Arnaboldi M., P.A. Meyers. 2004. Paleoceanographic reconstruction of productivity and oxygenation changes across the Mediterranean Sea during the deposition of two Late Pliocene sapropels. *EOS, Transactions American Geophysical Union*, 85(47), Fall Meet. Suppl., Abstract PP32A-07.

Arnaboldi M., P.A. Meyers. 2004. Nitrogen and carbon dynamics during the deposition of the latest Pliocene sapropels. 32nd IGC Florence 2004.

Meyers P.A., **M. Arnaboldi**. 2004. Four-site geochemical comparison of the insolation cycle 90 interrupted sapropel. 32nd IGC Florence 2004.

Poli, M.S., P.A. Meyers, R. Thunell, **M. Arnaboldi**, N. Orscheln. 2004. The western North Atlantic record of MIS 11-12: Changes in benthic foraminiferal assemblages and total organic carbon in sediments at the Blake Outer Ridge (ODP Site 1058). 32nd IGC Florence 2004.

- Marsaglia K.M., **M. Arnaboldi**, R.N. Hiscott, T.K. Pletsch, A. Robertson, M. Shirai, R.C. Wilson, A. Engstrom, G. Manatschal, T. Shryane, M. Leckie, and ODP Leg 210 Scientific Party 2004. Results from recent deep-water drilling in the Newfoundland Basin, East of Hibernia Field. AAPG Annual Meeting 2004.
- Arnaboldi M.**, P.A. Meyers. 2003. Trans-Mediterranean paleoclimate connections evident from carbon and nitrogen stable isotope patterns in late Pliocene sapropels. *EOS, Transactions American Geophysical Union*, **84**(46), Fall Meet. Suppl., Abstract PP51B-0925.
- Bernasconi S.M., P.A. Meyers, **M. Arnaboldi**. 2003. Carbon and nitrogen stable isotope systematics in three mid-Pleistocene sapropels from ODP Site 974 in the Tyrrhenian Basin. *EOS, Transactions American Geophysical Union*, **84**(46), Fall Meet. Suppl., Abstract PP11A-0219.
- Poli M.S., N. Orscheln, R. Thunell, P.A. Meyers, **M. Arnaboldi**. 2003. Changes in benthic foraminiferal assemblages and total organic carbon in sediments at ODP Site 1058, Blake Outer Ridge during Marine Isotope Stages 11-12. *EOS, Transactions American Geophysical Union*, **84**(46), Fall Meet. Suppl., Abstract PP51C-0941.
- Arnaboldi M.**, P. A. Meyers. 2002. Geochemical comparison of Late Pliocene sapropels from the Vrica land section and ODP Sites 964 and 974. *Geochimica et Cosmochimica Acta*, **66**(15A): A29.
- Meyers P.A., **M. Arnaboldi**. 2002. High-resolution comparison of same-age interrupted sapropel sequences from four ODP sites. *Geochimica et Cosmochimica Acta*, **66**(15A): A510.
- Arnaboldi M.**, P. A. Meyers, A. Negri, R.S. Robinson. 2001. Geochemical comparison of late Pliocene sapropels from Vrica (Calabria) and ODP Site 964. *EOS, Transactions American Geophysical Union*, **82**(47): F780.
- Negri, A., C. Morigi, **M. Arnaboldi**, C. Bonci., H. Brinkhuis, G. Bordoni, M. Claps, S. Fares, S. Giunta, S. Mazzoni, I. Motta, C. Murri., P. Santinelli, P. Meyers, M. Sarti. 2001. A multiproxy study of Vrica sapropel Layer C. European Geophysical Society Annual Meeting, Nice, France.
- Hassold N., L. Cotsonika, S. Kim, A. Boettcher, **M. Arnaboldi**, D.K. Rea, P.A. Meyers. 2001. High-resolution comparison of the i-cycle 90 interrupted sapropel from four locations. *EOS, Transactions American Geophysical Union*, **82**(47): F799.
- Arnaboldi, M.**, M. Claps, A. Negri, M. Sarti, P.A. Meyers. 2000. High-Resolution Geochemical Study of Sapropel C in the Vrica Borehole, Crotona, Italy. Workshop on Evolution and Oscillation of Post-Miocene Mediterranean Climate, Delmenhorst, Germany. Program and Abstracts.

- Arnaboldi, M.**, P.A. Meyers, A. Negri, R.S. Robinson, M. Sarti. 2000. High resolution geochemical study of sapropels C and D in the Vrica borehole, Crotone, Italy. *EOS, Transactions American Geophysical Union*, **81**(48): F655.
- Sarti, M., **M. Arnaboldi**, A. Del Greco, R.S. Robinson, A. Negri, M. Claps, P.A. Meyers. 1999. Mediterranean paleoclimate, paleoproductivity, and sedimentation rate cycles: New results from Vrica, Calabria. *EOS, Transactions American Geophysical Union*, **80**(46): F515.