

# Curriculum Vitae

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## Education

AWI/University of Bremen	PhD in Physics ('magna cum laude')	1998
University of Bremen	M.S. in Physics ('A')	1995

## Experience

Assistant Professor, University of Hawaii at Manoa, SOEST, Department of Oceanography, Honolulu, USA.	12/2003-today
Assistant research position, Alfred Wegener Institute, Bremerhaven, Germany.	9/2000-11/2003
Post-doctoral research position, Lamont-Doherty Earth Observatory, Palisades, New York, USA.	9/1999-8/2000
Post-doctoral research position, Alfred Wegener Institute, Bremerhaven, Germany.	3/1998-7/1999

## Professional Organization Membership

American Geophysical Union (1996-present)  
The Geochemical Society (1998-present)

## Professional Services

Editor of scholarly journals *Climate of the Past* and *Paleoceanography*.

Session Co-Convener of 'Feedbacks between Marine Biogeochemical Cycles and Climate', AGU Ocean Sciences Meeting, Honolulu 2006.

## Proposal Reviews

- Reviewer for funding agencies including U.S. National Science Foundation (NSF) and Netherlands Organization for Scientific Research (NWO).

## Journal and Book Reviews

- Reviewer for journals including *American Journal of Science*, *Deep-Sea Research*, *Earth and Planetary Science Letters*, *Energy*, *Geochimica et Cosmochimica Acta*, *Geology*, *Journal of the American Chemical Society*, *Journal of Geophysical Research*, *Journal of Marine Systems*, *Marine Micropaleontology*, *Nature*, *Paleoceanography*, *Science*.

- Reviewer for book chapter in "Proxies in Late Cenozoic Paleoceanography" (Elsevier).

### Scholarships and Honors

DFG ('German NSF') Research Fellowship	<b>1999-2000</b>
AGU/ASLO International Ocean Sciences Meeting Outstanding student paper award	<b>1996</b>

### Teaching

#### Courses:

- University of Hawaii at Manoa, Global Env. Change (OCN 310L): Problem-Solving and Computer Modeling **Fall 2004, 2005, 2006, 2007**
- University of Hawaii at Manoa, Earth System Science (OCN 638). In 2005 co-taught with F. T. Mackenzie **Fall 2005, 2007**
- University of Bremen, Graduate Course, "The climate system: physical and biogeochemical aspects" **Spring 2001**
- University of Bremen, Short-courses for German/Dutch graduate students **1999/2001**
- University of Bremen, Undergraduate Course, "Classical electrodynamics" Sections co-taught with D. Wolf-Gladrow **1998**

#### Students supported

- Uchikawa, J. (PhD).
- Menviel, L. (PhD).
- Lee, J. (Undergraduate).

#### Post-doctoral researchers supported

- Dr. Ilyina, T.

#### Advisory committees of dissertations and theses

- Uchikawa, J., Deciphering climate archives: Establishing the inorganic basis of an isotope fractionation phenomenon in biogenic CaCO<sub>3</sub>. Current PhD advisory committee, University of Hawaii at Manoa.
- Menviel, L., Investigating physical and biogeochemical effects on atmospheric CO<sub>2</sub> in transient runs of a coupled ocean-atmosphere general circulation model. Current PhD advisory committee, University of Hawaii at Manoa.
- Calil, P., Physical-biological interactions in Hawaiian Lee Eddies. Current PhD advisory committee, University of Hawaii at Manoa.

- Andersson, A., Biogeochemical consequences of rising atmospheric CO<sub>2</sub> and "ocean acidification" in the global coastal ocean and carbonate ecosystems. PhD advisory committee, University of Hawaii at Manoa, 2006.
- de Moel, H. Thinner planktonic foraminifera shells due to anthropogenic CO<sub>2</sub> emissions. M.S. advisory committee (and external referee), University of Amsterdam, 2006.
- Uchikawa, J., Utility of leaf wax normal alkanes for lacustrine sediment chronology and for reconstructions of the Holocene paleovegetative changes in Hawaii: An application of robust molecular  $\Delta^{14}\text{C}$  and  $\delta^{13}\text{C}$  techniques, M.S. advisory committee. University of Hawaii at Manoa, 2006.
- Schulz, K., Pleistocene glacial terminations triggered by Southern and Northern hemisphere insolation canon. PhD thesis project, University of Bremen, 2006.
- Rost, B., Carbon concentrating mechanisms in marine diatoms. PhD thesis, University of Bremen, 2003.
- Hönisch, B., Stable isotope and trace element composition of foraminiferal calcite - from incorporation to dissolution. PhD thesis, University of Bremen, 2002.
- Wischmeyer, A., Modeling the marine silicon cycle. Physics, Chemistry, and Biology. PhD thesis, University of Bremen, October 2002.
- Jansen H., Modeling the marine carbonate pump and its implications on the atmospheric CO<sub>2</sub> concentration. PhD thesis, University of Bremen, October 2001.
- Schulz, K., Einfluss von Zink auf die Kalzifizierung und stabile Kohlenstoffisotopen-Fraktionierung von *Emiliana huxleyi* (Coccolithophorales). Diploma thesis, University of Bremen, October 2001.
- Zondervan, I., The effect of the carbonate chemistry on the calcification in coccolithophores. PhD thesis, University of Bremen, March 2001.

### Other Services

Provided user-interface and data input/output support for numerical routines computing carbonate chemistry parameters (developed earlier).

[www.soest.hawaii.edu/oceanography/faculty/zeebe.html](http://www.soest.hawaii.edu/oceanography/faculty/zeebe.html)

**Oct 2004**

Developed numerical routines computing carbonate chemistry parameters and made them freely available on the Internet.

[www.awi-bremerhaven.de/Carbon/co2book.html](http://www.awi-bremerhaven.de/Carbon/co2book.html)

**Oct 2001**

## Publications

### Peer-reviewed

#### Books

**Zeebe R. E.** and D. A. Wolf-Gladrow, *CO<sub>2</sub> in Seawater: Equilibrium, Kinetics, Isotopes*, Elsevier Oceanography Series, 65, pp. 346, Amsterdam, 2001. Reviewed by six peers. Reprinted in 2003 and 2005.

#### Articles

1. **Zeebe R. E.**, and K. Caldeira. Close mass balance of long-term carbon fluxes from ice-core CO<sub>2</sub> and ocean chemistry records. *Nature Geoscience*, in press 2008.
2. Zachos, J. C., G. R. Dickens, and **R. E. Zeebe**. An early Cenozoic perspective on greenhouse warming and carbon-cycle dynamics. *Nature*, 451, 279-283, doi:10.1038/nature06588, 2008.
3. **Zeebe R. E.**, J. Bijma, B. Hönisch, A. Sanyal, H. J. Spero, and D. A. Wolf-Gladrow. Vital Effects and Beyond: A Modeling Perspective on Developing Paleoceanographic Proxy Relationships in Foraminifera, The Geological Society, London. Special Publications. *Biogeochemical Controls on Palaeoceanographic Proxies*. Eds.: James, R., Austin, W. E. N., Clarke, L., Rickaby, R. E. M., in press 2008.
4. **Zeebe R. E.**, and D. A. Wolf-Gladrow. Carbon dioxide, dissolved (ocean). *Encyclopedia of Paleoclimatology and Ancient Environments*, Ed. V. Gornitz, Kluwer Academic Publishers, Earth Science Series, in press 2008.
5. Wolf-Gladrow, D. A., and **R. E. Zeebe**. Isotope fractionation. *Encyclopedia of Paleoclimatology and Ancient Environments*, Ed. V. Gornitz, Kluwer Academic Publishers, Earth Science Series, in press 2008.
6. **Zeebe R. E.** Modeling CO<sub>2</sub> chemistry,  $\delta^{13}\text{C}$ , and oxidation of organic carbon and methane in sediment porewater: Implications for paleo-proxies in benthic foraminifera. *Geochim. Cosmochim. Acta*, 71(13), 3238-3256, doi: 10.1016/j.gca.2007.05.004, 2007.
7. **Zeebe R. E.** An expression for the overall oxygen isotope fractionation between the sum of dissolved inorganic carbon and water. *Geochem. Geophys. Geosyst.* 8(9), doi:10.1029/2007GC001663, 2007.
8. **Zeebe R. E.**, and J. C. Zachos. Reversed deep-sea carbonate ion basin-gradient during Paleocene-Eocene Thermal Maximum. *Paleoceanography*, 22, PA3201, doi:10.1029/2006PA001395, 2007.
9. Wolf-Gladrow, D. A., **R. E. Zeebe**, C. Klaas, A. Körtzinger, and A. G. Dickson. Total alkalinity: the explicit conservative expression and its application to biogeochemical processes. *Marine Chemistry*, doi:10.1016/j.marchem.2007.01.006, 2007.

10. Caldeira K., D. Archer, J. P. Barry, R. G. J. Bellerby, P. G. Brewer, L. Cao, A. G. Dickson, S. C. Doney, H. Elderfield, V. J. Fabry, R. A. Feely, J.-P. Gattuso, P. M. Haugan, O. Hoegh-Guldberg, A. K. Jain, J. A. Kleypas, C. Langdon, J. C. Orr, A. Ridgwell, C. L. Sabine, B. A. Seibel, Y. Shirayama, C. Turley, A. J. Watson, and **R. E. Zeebe**, Comment on "Modern-age buildup of CO<sub>2</sub> and its effects on seawater acidity and salinity". *Geophys. Res. Lett.* (34), doi:10.1029/2006GL027288, 2007.
11. Schulz, K. G., and **R. E. Zeebe**. Pleistocene glacial terminations triggered by synchronous changes in Southern and Northern Hemisphere insolation: The insolation canon hypothesis. *Earth Planet. Sci. Lett.*, 249(3-4), 326-336, 2006.
12. Schulz, K. G., U. Riebesell, B. Rost, S. Thoms, and **R. E. Zeebe**. Determination of the rate constants for the carbon dioxide to bicarbonate inter-conversion in pH-buffered seawater systems, *Mar. Chem.*, 100, 53-65, 2006.
13. **Zeebe R. E.** Stable boron isotope fractionation between dissolved B(OH)<sub>3</sub> and B(OH)<sub>4</sub><sup>-</sup>. *Geochim. Cosmochim. Acta*, 69(11), 2753-2766, 2005.
14. **Zeebe R. E.**, and D. Archer. Feasibility of ocean fertilization and its impact on future atmospheric CO<sub>2</sub> levels. *Geophys. Res. Lett.*, 32, L09703, doi:10.1029/2005GL022449, 2005.
15. Ridgwell, A., and **R. E. Zeebe**. The role of the global carbonate cycle in the regulation and evolution of the Earth system. FRONTIERS ARTICLE, *Earth Planet. Sci. Lett.*, 234, 299-315, 2005.
16. Köhler, P., H. Fischer, G. Munhoven, and **R. E. Zeebe**. Quantitative interpretation of atmospheric carbon records over the last glacial termination. *Global Biogeochem. Cycles*, (19), GB4020, doi:10.1029/2004GB002345, 2005.
17. **Zeebe R. E.** Reply to the Comment by P. Deines on: "An explanation of the effect of seawater carbonate concentration on foraminiferal oxygen isotopes" by R. E. Zeebe, *GCA*, 63, p. 2001, 1999. *Geochim. Cosmochim. Acta*, 69(3), 789-790, 2005.
18. Tyrrell, T. and **R. E. Zeebe**. History of carbonate ion concentration over the last 100 million years. *Geochim. Cosmochim. Acta*, 68(17), 3521-3530, 2004.
19. **Zeebe R. E.**, and P. Westbroek. A simple model for the CaCO<sub>3</sub> saturation state of the ocean: The "Strangelove", the "Neritan", and the "Cretan" ocean. *Geochem. Geophys. Geosyst.*, 4(12), 1104, doi:10.1029/2003GC000538, 2003.
20. **Zeebe R. E.**, D. A. Wolf-Gladrow, J. Bijma, and B. Hönisch. Vital effects in planktonic foraminifera do not compromise the use of δ<sup>11</sup>B as a paleo-pH indicator: Evidence from modeling. *Paleoceanography*, 18(2), doi: 10.1029/2003PA000881, 2003.
21. Hönisch, B., J. Bijma, A. D. Russell, H. J. Spero, M. R. Palmer, **R. E. Zeebe**, and A. Eisenhauer. The influence of symbiont photosynthesis on the boron isotopic composition of foraminifera shells. *Marine Micropaleontology*, 49(1-2), doi: doi:10.1016/S0377-8398(03)00030-6, 2003.

22. **Zeebe R. E.**, and A. Sanyal. Comparison of two potential strategies of planktonic foraminifera for house building:  $Mg^{2+}$  or  $H^{+}$  removal? *Geochim. Cosmochim. Acta*, 66(7), 1159-1169, 2002.
23. Bijma, J., B. Hönisch, and **R. E. Zeebe**. Impact of the ocean carbonate chemistry on living foraminiferal shell weight: Comment on "Carbonate ion concentration in glacial-age deep waters of the Caribbean Sea" by W. S. Broecker and E. Clark. *Geochem. Geophys. Geosyst.*, 3(11), 1064, doi: 10.1029/2002GC000388, 2002.
24. Jansen, H., **R. E. Zeebe**, and D. A. Wolf-Gladrow. Modeling the dissolution of settling  $CaCO_3$  in the ocean. *Global Biogeochem. Cycles*, 16(2), 10.1029/2000GB001279, 2002.
25. **Zeebe R. E.** Seawater pH and Isotopic Paleotemperatures of Cretaceous Oceans. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 170(1-2) 49-57, 2001.
26. **Zeebe R. E.**, A. Sanyal, J. D. Ortiz, and D. A. Wolf-Gladrow. A theoretical study of the kinetics of the boric acid - borate equilibrium in seawater. *Mar. Chem.*, 73(2), 113-124, 2001.
27. Zondervan, I., **R. E. Zeebe**, B. Rost, and U. Riebesell. Decreasing marine biogenic calcification: A negative feedback on rising atmospheric  $pCO_2$ . *Global Biogeochem. Cycles*, 15(2), 507-516, 2001.
28. Riebesell, U., I. Zondervan, B. Rost, and **R. E. Zeebe**. Effects of increasing atmospheric  $CO_2$  on phytoplankton communities and the biological carbon pump. *Global Change News Letters*, 47, 12-15, 2001.
29. Riebesell, U., I. Zondervan, B. Rost, P. D. Tortell, **R. E. Zeebe**, and F. M. M. Morel. Reduced calcification of marine plankton in response to increased atmospheric  $CO_2$ . *Nature*, 407, 364-367, 2000.
30. **Zeebe R. E.** An explanation of the effect of seawater carbonate concentration on foraminiferal oxygen isotopes. *Geochim. Cosmochim. Acta*, 63, 2001-2007, 1999.
31. **Zeebe R. E.**, D. A. Wolf-Gladrow, and H. Jansen. On the time required to establish chemical and isotopic equilibrium in the carbon dioxide system in sea water. *Mar. Chem.*, 65, 135-153, 1999.
32. **Zeebe R. E.**, J. Bijma, and D. A. Wolf-Gladrow. A diffusion-reaction model of carbon isotope fractionation in foraminifera. *Mar. Chem.*, 64, 199-227, 1999.

33. Wolf-Gladrow, D. A., J. Bijma, and R. E. Zeebe. Model simulation of the carbonate system in the microenvironment of symbiont bearing foraminifera. *Mar. Chem.*, 64, 181-198, 1999.
34. Zeebe R. E., H. Eicken, D. H. Robinson, D. A. Wolf-Gladrow, and G. S. Dieckmann. Modeling the heating and melting of sea ice through light absorption by microalgae. *J. Geophys. Res.*, 101, 1163-1181, 1996.

### Invited article in electronic encyclopedia

Zeebe R. E., Marine carbonate chemistry, The Encyclopedia of Earth.  
[www.eoearth.org/article/Marine\\_carbonate\\_chemistry](http://www.eoearth.org/article/Marine_carbonate_chemistry)

### Dissertations

- Zeebe, R. E., A diffusion-reaction model of stable carbon isotope fractionation in foraminifera – Implications for CO<sub>2</sub> reconstructions. PhD Thesis, pp. 156, University of Bremen, 1998.
- Zeebe, R. E., A one-dimensional thermodynamic sea-ice model including bio-optical properties, Diploma Thesis, pp. 96, University of Bremen, 1995.

### Published reviews on REZ's work

- Delille, B., *Journal of Marine Systems*, 36, 269-270, 2002.
- Goyet, C., *Limnology and Oceanography Bulletin*, 12(1), 6-7, 2003.

### Support

#### US (Current)

- National Science Foundation. "Deciphering climate archives: Establishing the inorganic basis of an isotope fractionation phenomenon in biogenic CaCO<sub>3</sub>." NSF: OCE05-25647, Funding Period: 08/2005-07/2008. Amount: \$242,962. PI: Zeebe, R. E.
- Department of Energy. "The future of marine calcification: Forecasting global carbon fluxes and atmospheric CO<sub>2</sub> concentrations." DOE: DE-FG02-06ER64077, Funding Period: 11/2005-10/2008. Amount: \$313,135. PI: Zeebe, R. E.
- National Science Foundation. "Early detection of ocean acidification effects on marine calcification and deep-sea carbonate dissolution." Funding Period: 03/2008-02/2011. Amount: \$368,597. PI: Zeebe, R. E.

- National Science Foundation. "Collaborative Research: Dynamics of carbon release and sequestration; Case studies of two early Eocene hyperthermals." (10 Institutions), NSF: EAR06-28394, PI at University of Hawaii: Zeebe, R. E., Funding Period: 09/2006-08/2009. Total Amount: \$2.3 M; to UH/Zeebe: \$214,495.

### Europe (Past)

- DFG ("German NSF") Research grant (Ze 468/1-1). Full salary support for project at LDEO, Lamont, New York, USA (1999-2001).

### Invited Talks

- "Carbon cycling across the Paleocene-Eocene boundary", International Conference on Paleoceanography 9, Shanghai, China, September 2007.
- "Ocean acidification – past and future", Whole Earth Seminar, University of California, Santa Cruz, USA. Department of Earth & Planetary Sciences, April 2007.
- "Reversed deep-sea carbonate ion basin-gradient during Paleocene-Eocene Thermal Maximum", OS12B-01, AGU Fall Meeting, San Francisco, USA, December 2006.
- "Modeling biogeochemical aspects of ocean acidification", IGBP–SCOR FTI Workshop on Ocean Acidification - modern observations and past experiences, Lamont, USA, September 2006.
- "What do the Early Eocene and Anthropocene have in common?" University of California, Davis, USA. Geology Department. April 2006.
- "Modeling biogeochemical processes in the sea: From single organisms to global element cycles". IFM-GEOMAR Kiel, Germany. October 2005.
- Keynote speaker: "Paleo-Proxies: Vital effects and beyond", Biogeochemical Controls on Palaeoceanographic Proxies. Geological Society of London, Piccadilly, London, UK. October 2005.
- "Seawater carbonate chemistry and fluxes of organic and carbonate carbon". AGU Chapman Conference, Woods Hole, USA, July 2005.
- "Ca and Mg in the ocean". Southampton Oceanography Center (SOC) seminar series, Southampton, UK, October 2003.
- "Ca and Mg in the ocean: Basis of a new CO<sub>2</sub> system proxy and costs for calcite home builders". Seminar at Faculty of Earth and Life Sciences, Vrije Universiteit Amsterdam, The Netherlands, July 2003.

- "The ocean's deep water production as the driver of glacial/interglacial CO<sub>2</sub> variations". Michaelmas Term 2002 Seminar Series, Cambridge University, UK, November 2002.
- "Effekte von CO<sub>2</sub> auf marine Biogeochemie". Institut für Ostseeforschung Warnemünde, Universität Rostock, Germany, May 2002.
- "Interrelations of atmospheric CO<sub>2</sub> and marine biogeochemistry". German-American Frontiers of Science of Alexander von Humboldt-Stiftung and the National Academy of Science, California, Irvine, USA, Juni 2002 (Poster).
- "Effects of CO<sub>2</sub> on marine biogeochemistry". Rosenstiel School of Marine and Atmospheric Science. Miami, USA, October 2000.

## Talks

- "Modeling early signs of ocean acidification effects on marine calcification", (Ilyina et al.) European Geophysical Society, Vienna, Austria, April 2007.
- "A lesson on carbon release and sequestration from the past", Goldschmidt Conference, Melbourne, Australia, August 2006.
- "Carbon Cycling". University of Hawaii at Manoa, OCN 100: Seminar in Global Environmental Science, October 2006.
- "Is large-scale iron fertilization a feasible strategy to sequester anthropogenic CO<sub>2</sub>?" AGU Ocean Sciences Meeting, Honolulu, February 2006.
- "A new theoretical framework for stable isotope fractionation involving dissolved compounds in aqueous solution." AGU Ocean Sciences Meeting, Honolulu, February 2006.
- "Simple ocean carbon cycle models tell different stories about the ocean's glacial CO<sub>2</sub> chemistry." European Geophysical Society, Vienna, Austria, April 2005.
- "Large effect of hydration on <sup>18</sup>O fractionation between H<sub>2</sub>O and CO<sub>3</sub><sup>2-</sup>: Implications for the pH-carbonate-δ<sup>18</sup>O relationship and inferred climate changes." European Geophysical Society, Vienna, Austria, April 2005.
- "Paleoacidimetry - comments by the devils advocate and replies". University of Hawaii at Manoa, OCN 780: Oceanography Department Seminar Series, April 2004.
- "Relating southern and northern hemisphere insolation changes to Pleistocene glacial terminations". (Schulz and Zeebe), European Geophysical Society, Nice, France, March 2004.
- "Ca and Mg in the ocean: Basis of a new CO<sub>2</sub> system proxy and costs for calcite home builders". University of Hawaii, June 2003.

- "Reconstructing ocean carbonate chemistry and atmospheric CO<sub>2</sub> over the last 100 Ma: A new approach". European Geophysical Society, Nice, France, March 2003.
- "Localizing the Holy Grail: Glacial/interglacial variations in atmospheric CO<sub>2</sub> and oceanic deep water production". European Geophysical Society, Nice, France, March 2003.
- "Marine Calcification: pCO<sub>2</sub> and coccolithophorids / Mg and foraminifera". University of California Davis, USA, December, 2002.
- "From Urey to the ocean's glacial pH: News from the boron-11 paleo-acidimetry". European Geophysical Society, Nice, France, March 2002.
- "A simple model of the saturation state of the ocean: The Strangelove and the Cretan Ocean". Coccolithophores - from molecular processes to global impact, Ascona, Switzerland, Februar 2002.
- "Towards a mechanistic understanding of boron isotope ratios in biogenic carbonates as recorders of seawater pH". (Bijma et al.), AGU Fall Meeting, San Francisco, USA, December 2001.
- "Modeling: A new tool for understanding life processes and stable isotope fractionation in foraminifera", European Geophysical Society, Nice, France, March 2001.
- "Elevated CO<sub>2</sub> concentrations slow down carbonate production in calcifying marine phytoplankton" (Zondervan et al.), 8th International Nanoplankton Association Conference, University of Bremen, Germany, 2001.
- "Effect of seawater pH on foraminiferal oxygen isotopes: Theory and application", AGU Fall Meeting, San Francisco, USA, December 1999.
- "Quantum mechanics and foraminifera. Stable isotope fractionation: Basics and News", NEBROC Workshop, Bremen, Germany, March 1999.
- "Modeling carbon and oxygen isotope fractionation in foraminifera", Workshop on Biomineralization, Eilat, Israel, June 1998.
- "Model Simulation of Carbon Isotope Fractionation in Foraminifera" (Bijma et al.), AGU Fall Meeting, San Francisco, USA, December 1996.

### Conference Papers

- "Anthropogenic impact on carbonate sediment dissolution in the coastal and global ocean", Sediment 2006, Göttingen, Germany, June 2006.

- "Major Pleistocene ice age terminations initiated by insolation canon in the two hemispheres", International Conference on Paleoceanography VIII, Biarritz, France, September 2004.
- "Does Poseidon keep the Holy Grail? Changes in Southern Ocean and North Atlantic deep water production as the driver of the deglacial CO<sub>2</sub> rise", AGU Fall Meeting, San Francisco, USA, December 2002.
- "Has the Global Carbon Cycle been in Transition During the Last 100 Million Years?" (Tyrrell and Zeebe), GRS Conference on Chemical Oceanography, Oxford, UK, August 2002.
- "Modeling pH profiles and stable boron isotopes in planktonic foraminifera", International Conference on Paleoceanography VII, Sapporo, Japan, September 2001.
- "A theoretical study of the kinetics of the boric acid - borate equilibrium in seawater", AGU Fall Meeting, San Francisco, USA, December 2000.
- "Comparison of two potential strategies of planktonic foraminifera for house building: Mg<sup>2+</sup> or H<sup>+</sup> pumping?", AGU Fall Meeting, San Francisco, USA, December 2000.
- "An explanation of seawater carbonate concentration on foraminiferal oxygen isotopes", International Conference on stable isotopes and isotope effects, Carry le Rouet, France, June 1999.
- "Modeling the effect of sea water carbonate concentration on carbon isotope fractionation in foraminifera", International Conference on Paleoceanography VI, Lisbon, Portugal, August 1998.
- "Modeling the heating and melting of sea ice through light absorption by microalgae", Ocean Sciences Meeting, San Diego, USA, February 1996.
- "Model simulation of the carbonate system in the microenvironment of symbiont bearing foraminifera", JGOFS Meeting, Bremen, Germany, 1995.