

Dr. Marius N. Müller

Employment and education

- Since Apr 2014 **IO-USP Institute of Oceanography, São Paulo (Brazil)**, Post-doctoral research fellow.
- Jan 2011 – Jan 2014 **IMAS Institute for Marine and Antarctic Studies, Hobart (Australia)**, Post-doctoral research fellow.
- Aug 2009 – Oct 2010 **LOV Laboratory of Oceanography, Villefranche-sur-mer (France)**, Post-doctoral research fellow.
- Jan 2005 – Aug 2009 **IFM-GEOMAR Leibniz Institute of Marine Sciences, Kiel**, PhD in "Marine Biogeochemistry", Supervisors: Profs U. Riebesell and A. Eisenhauer.
- Oct 1998 – Jan 2005 **Christian-Albrechts-University, Kiel**, Master in Biology with focus on "Biological Oceanography", "Marine Chemistry" and "Oceanography".

Grants and awards

- 2014 **Survival of the fittest: Ocean acidification sets the pace for Brazilian microalgae. Implications for regional carbon sequestration?**, *Ciencia sem Fronteiras-CNPq*, PIs: A. Davidson, J. McKinlay, M. N. Müller, F. Brandini, Budget: 317,000 BRL.
- 2012/2013 **Effects of ocean acidification on marine microbes in the Southern Ocean**, *Australian Antarctic Science Program*, PIs: A. Davidson, J. McKinlay, M. N. Müller, B. Raymond, K. Westwood, Budget: 2,500,000 AUD.
- 2011 **Institutional equipment grant**, *Institute for Marine and Antarctic Studies*, PIs: M. N. Müller, G. M. Hallegraeff, Budget: 37,000 AUD.
- 2009 **Long-term response of phytoplankton on climate change: a multidimensional approach**, *Sub-project in the German Project on Ocean Acidification (BIOACID)*, PI: M. N. Müller, Budget: 285,000 EUR.
- 2006 **Young Scientists' Outstanding Poster Paper (YSOPP) Award**, *European Geosciences Union*.
- Since 2007 **Travel grants**, *Prof Dr Werner Peterson Foundation, Gordon and Betty Moore Foundation, Baltic Marine Environment Protection Commission (HELCOM), European Geosciences Union, National Science Foundation, University of Tasmania*, Total of 10,000 USD.

Field research experience

- Jan 2014 **Response of Antarctic sea ice algae to carbonate chemistry manipulations II**, *Scott Base (Antarctica)*, PIs: Prof A. McMinn/ Dr K. Ryan.
- Nov-Dec 2012 **Response of Antarctic sea ice algae to carbonate chemistry manipulations I**, *Scott Base (Antarctica)*, PIs: Prof A. McMinn/ Dr K. Ryan.
- Mai 2006 **Intracellular pH measurements via confocal microscopy**, *Hebrew University (Israel)*, PI: Prof J. Erez.

- Mai-Jun 2005 **PeECE (Pelagic Ecosystem CO₂ Enrichment Study) III Mesocosm Study**, Bergen (Norway), PI: Prof U. Riebesell.
- Oct 2005 **Research cruise in the project SOLAS (Surface Ocean Lower Atmosphere Study)**, Tropical Atlantic, PIs: Prof K. Lochte/ Dr A.N. Antia.
- Jan, Oct 2001 **Research cruises in the project ICES (International Council for the Exploration of the Sea)**, North Atlantic, PI: Dr N. Rohlfs.

Teaching activities

- Since 2007 Supervisor for Bachelor, Master and PhD theses.
- Since 2005 Lecturer and advisor in university courses.
- 2009-2003 First aid instructor.
- 2008-2002 Lecturer and guide at the Marine Biology Station in Laboe (Germany).

Journal referee

Journal of Phycology, Biogeosciences, Journal of Experimental Marine Biology and Ecology, Aquatic Microbial Ecology, Aquatic Biology, Evolution, Marine Ecology Progress Series.

Languages

German (native speaker), English (near native/fluently), Portuguese (conversant), French (basics).

Publications

- 2014 **Influence of temperature and CO₂ on the strontium and magnesium composition of coccolithophore calcite**, *Müller M. N., Lebrato M., Riebesell U., Barcelos e Ramos J., Schulz K. G., Blanco-Ameijeiras S., Sett S., Eisenhauer A., Stoll H. M.*, Biogeosciences, 11, 1065-1075.
- 2014 **The response of Antarctic sea ice algae to changes in pH and CO₂**, *McMinn A., Müller M. N., Martin, A., Ryan K. G.*, PLoS One, 9(1):e86984. doi:10.1371/journal.pone.0086984.
- 2012 **Influence of CO₂ and nitrogen limitation on the coccolith volume of *Emiliania huxleyi* (Haptophyta)**, *Müller M. N., Beaufort L., Bernard O., Pedrotti M. L., Talec A. and Sciandra A.*, Biogeosciences, 9, 4155-4167.
- 2012 **Ocean acidification**, *Howard W. R., Nash M., Anthony K., Schmutter K., Bostock H., Bromhead D., Byrne M, Currie K., Diaz-Pulido G., Eggins S., Ellwood M., Eyre B., Haese R., Hallegraeff G., Hill K., Hurd C., Law C., Lenton A., Matear R., McNeil B., McCulloch M., Müller M. N., Munday P., Opdyke B., Pandolfi J. M., Richards R., Roberts D., Russell B. D., Smith A. M., Tilbrook B., Waite A., Williamson J.*, In A Marine Climate Change Impacts and Adaptation Report Card for Australia 2012 (Eds. E.S. Poloczanska, A.J. Hobday and A.J. Richardson).
- 2012 **Removal of organic magnesium in coccolithophore calcite**, *Blanco-Ameijeiras S., Lebrato M., Stoll H. M., Iglesias-Rodriguez M. D., Méndez-Vicente A., Sett S., Müller M. N., Oschlies A. and Schulz K. G.*, Geochimica et Cosmochimica Acta, 89, 226-239.

- 2011 **Response of the coccolithophores *Emiliana huxleyi* and *Coccolithus braarudii* to changing seawater Mg^{2+} and Ca^{2+} concentrations: Mg^{2+} , Sr^{2+} incorporation and $\delta^{44/40}Ca$, $\delta^{26/24}Mg$ in calcite**, Müller M. N., Kisakürek B., Buhl D., Eisenhauer A., Gutperlet R., Kolevica A., Riebesell U. and Stoll H., *Geochimica et Cosmochimica Acta*, 75, 2088-2102.
- 2011 **Constraining the Marine Sr Budget from Natural Strontium Isotope Fractionation ($^{87}Sr/^{86}Sr^*/\delta^{88/86}Sr$) of Carbonates, Hydrothermal Solutions and River Waters**, Krabbenhöft A., Eisenhauer A., Böhm F., Vollstaedt H., Fietzke J., Liebetrau V., Augustin N., Peucker-Ehrenbrink B., Horn C., Hansen B. T., Nolte N., Müller M. N. and Wallmann K., *Geochimica et Cosmochimica Acta*, 74, 4097-4109.
- 2010 **Effects of long-term high CO_2 exposure on two species of coccolithophores**, Müller M. N., Schulz K. G., and Riebesell U., *Biogeosciences*, 7, 1109-1116.
- 2010 **Short-term response of the coccolithophore *Emiliana huxleyi* to abrupt changes in seawater carbon dioxide concentrations**, Barcelos e Ramos J., Müller M. N., and Riebesell U., *Biogeosciences*, 7, 177-186.
- 2009 **Magnesium isotope fractionation in inorganic and biogenic calcite**, Kisakürek B., Niedermayr A., Müller M. N., Taubner I., Eisenhauer A., Dietzel M., Buhl D., Fietzke J. and Erez J., *Geochimica et Cosmochimica Acta*, 73, p. A663.
- 2009 **Calcification in coccolithophores: Effects of environmental conditions and paleoproxy calibrations**, Müller M. N., PhD-thesis, University of Kiel, 154pp.
- 2008 **Dissolution of coccolithophorid calcite by microzooplankton and copepod grazing**, Antia A. N., Suffrian K., Holste L., Müller M. N., Nejtgaard J. C., Simonelli P., Carotenuto Y. and Putzeys S., *Biogeosciences Discussions*, 5, 1-23.
- 2008 **Influence of cell cycle phase on calcification in the coccolithophore *Emiliana huxleyi***, Müller M. N., Antia A. N. and LaRoche J., *Limnology and Oceanography*, 53(2): 506-512.
- 2008 **Build-up and decline of organic matter during PeECE III**, Schulz K. G., Riebesell U., Bellerby R. G. J., Biswas H., Meyerhöfer M., Müller M. N., Egge J. K., Nejtgaard J. C., Neill C., Wohlers J., and Zöllner E., *Biogeosciences*, 5, 707-718.
- In Review **Phytoplankton calcification as an effective mechanism to prevent cellular calcium poisoning**, Müller M. N., Barcelos e Ramos J., Schulz K. G., Riebesell U., Gallo F., Mackinder L., Kaźmierczak J., Li Y., Nesterenko P. N., Trull T. and Hallegraeff G. M., *Proceedings of the National Academy of Sciences*.
- In Review **Phenotypic variability in the coccolithophore *Emiliana huxleyi*: Implications for ocean biogeochemistry and paleoproxy applications**, Blanco-Ameijeiras S., Lebrato M., Stoll H. M., Iglesias-Rodriguez M. D., Müller M. N., Méndez-Vicente A., Oschlies A., *New Phytologist*.
- In Review **Determination of trace magnesium and strontium in calcium carbonate and calcareous skeletons of marine planktonic organisms using high performance chelation ion chromatography**, Li Y., Paull B., Müller M. N. and Nesterenko P. N., *Analytical Methods*.

First author conference presentations

- 2014 **Coccolithophores: Past, Present and Future**, *Institute of Oceanography*, São Paulo (Brazil), Oral.
- 2013 **Ocean acidification and coccolithophores: Insights from controlled laboratory experiments**, *Ocean Acidification Workshop*, Hobart (Australia), Oral.
- 2013 **Sensitivity of Southern Ocean coccolithophores to ocean acidification**, *Australian Marine Sciences Association Conference*, Gold Coast (Australia), Oral.
- 2012 **Influence of CO₂ and nutrient limitation on the coccolith volume of *Emiliana huxleyi***, 3rd international Symposium "The ocean in a high CO₂ world", Monterey (USA), Oral.
- 2011 **Influence of nutrient limitation and CO₂ on the cell and coccolith volume of coccolithophores: Implications for the sediment record**, *Ocean acidification and implications for living marine resources in the Southern Hemisphere*, Canberra (Australia), Oral.
- 2010 **Coccolithophores: Influence of physiology on calcite chemistry (Ca, Sr and Mg)**, *Workshop on Paleo-ocean Acidification and Carbon Cycle Perturbation Events*, Catalina Island (USA), Oral.
- 2008 **Influence of high CO₂ on coccolithophores under long-term cultivation**, 2nd international Symposium "The ocean in a high CO₂ world", Monte Carlo (Monaco), Oral.
- 2008 **Influence of high CO₂ on three coccolithophore key species under long-term cultivation**, *EPOCA Kickoff-Meeting*, Nice (France), Poster.
- 2007 **Coccolithophorid calcification and isotope fractionation in relation to seawater Mg/Ca ratios**, *Geologische Vereinigung*, Bremen (Germany), Oral.
- 2007 **Coccolithophorid adaptation to rising atmospheric CO₂: a running long-term experiment**, *European Marine Biology Symposium*, Kiel (Germany), Poster.
- 2007 **Coccolithophorid calcification in relation to seawater Mg/Ca ratios**, *General Assembly of the European Geoscience Union*, Vienna (Austria), Poster.
- 2007 **Calcification in relation to the cell cycle of *Emiliana huxleyi***, *Alfred Wegner Institute*, Bremerhafen (Germany), Invited oral.
- 2007 **Calcification in relation to the cell cycle of *Emiliana huxleyi***, *Hebrew University*, Jerusalem (Israel), Oral.
- 2006 **Cell cycle of *Emiliana huxleyi* under enhanced atmospheric CO₂ and its relation to calcification**, *General Assembly of the European Geoscience Union*, Vienna (Austria), Poster.
- 2005 **Key factors, influencing the ecological development of the Baltic Sea**, *HELCOM-Youth Forum*, Rostock (Germany), Oral.

Referee contact details

Prof Ulf Riebesell, *GEOMAR / Helmholtz Centre for Ocean Research Kiel*, Düsternbrooker Weg 20, D-24105 Kiel, Germany, Phone: +49 (431) 600-4444, E-mail: uriebesell@geomar.de.

Prof Frederico P. Brandini, *IO-USP / Institute for Oceanography at the University of São Paulo*, Praça do Oceanográfico 191, 05508-120 São Paulo, Brazil, Phone: + 55 (11) 3091-6501, E-mail: brandini@usp.br.

Prof Gustaaf M. Hallegraef, *IMAS / Institute for Marine and Antarctic Research*, Private Bag 129, Hobart 7001, TAS, Australia, Phone: +61 (3) 6226-2623, E-mail: hallegraeff@utas.edu.au.