



Prof. Dr. Bärbel Hönisch

Lamont-Doherty Earth Observatory of
Columbia University, Palisades, NY, U.S.A.



“IT WAS VERY EXCITING IN THOSE DAYS.
WE WERE EXPLORERS.”

Marie-Tharp [1920-2006], Oceanographer

Thursday, 22nd March 2018, 01:00 p.m. [13:00h]
GEOMAR Lecture Hall West (R.54) | Düsternbrooker Weg 20, 24105 Kiel

Reconstructing Carbonate Chemistry in Earth History



As atmospheric CO₂ concentrations keep rising to ever higher levels, projecting the possible impacts on climate and life is still subject to considerable debate. Earth history can help us improve our understanding of carbon cycle variations and their effect on climate, but some of the most relevant episodes of climate change occurred millions of years ago. Studying such ancient environmental changes requires the use of proxies, i.e. quantifiable surrogates for chemical and physical parameters that can no longer be measured directly.

My research focuses on understanding, improving and applying boron proxies in marine carbonates to reconstruct past variations in ocean carbonate chemistry and atmospheric pCO₂. Using examples from the

Cenozoic era, and evidence from culture experiments with live planktic foraminifera, I will discuss what we have learned about past episodes of climate change, where opportunities arise to make further improvements, and how such records can be combined with alternative reconstructions to obtain a more solid understanding of past climate change.