

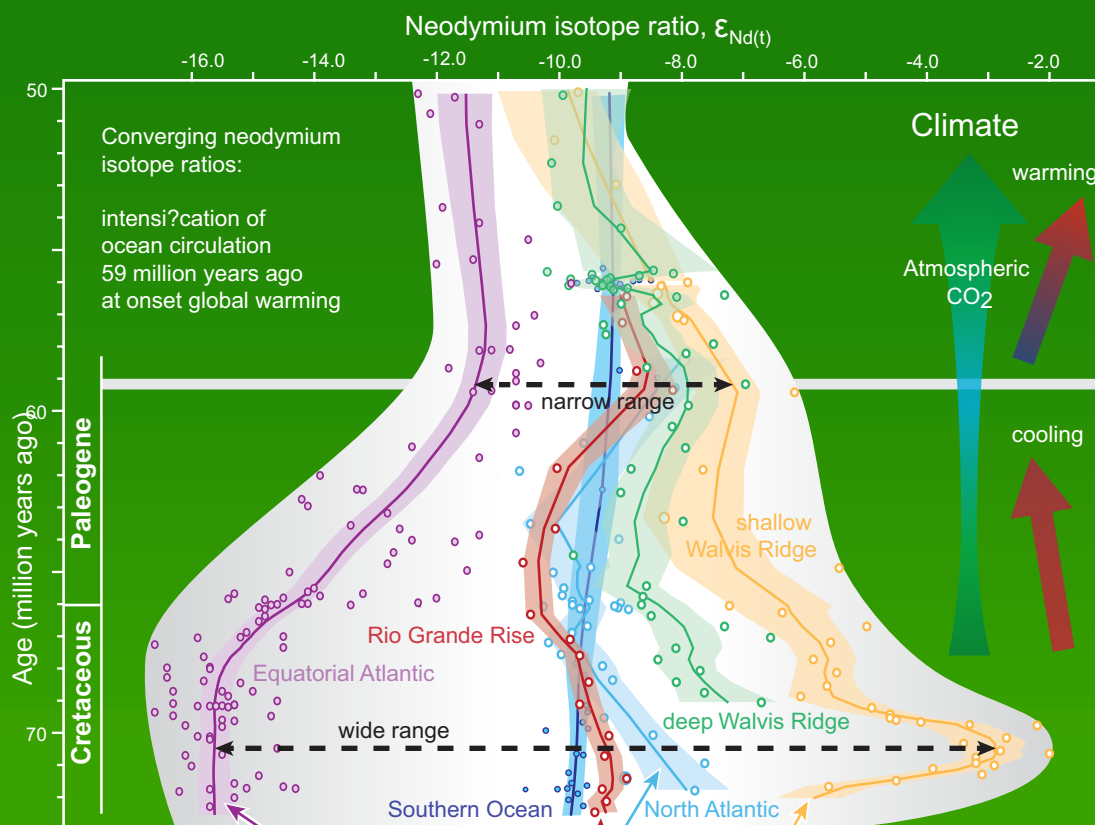


si vás dovoluje pozvat na Seminář ze sedimentární geologie (MG421S35B), který se koná
ve středu **24. dubna 2019** od **14:50** ve **Velké paleontologické posluchárně**

Investigating the role of oceanography in past greenhouse climates using neodymium isotopes

Sietske Batenburg

University of Oxford & Université de Rennes 1



Extreme greenhouse periods such as the Cretaceous (145–66 million years ago) and Eocene (56–34 million years ago) may be suitable analogues for current global warming. These past greenhouse worlds were characterised by high sea levels and temperatures, and were punctuated by abrupt carbon cycle perturbations.

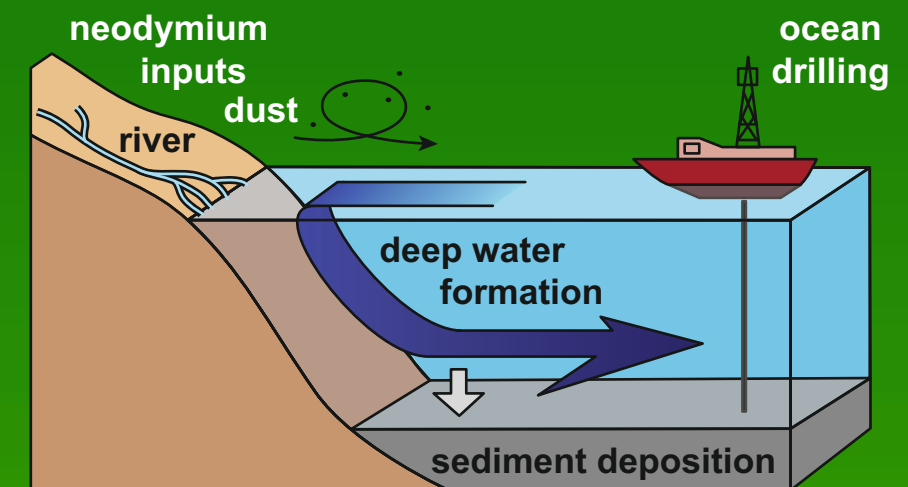
During the hothouse conditions of the mid-Cretaceous at 94 million years ago, a sudden warming event led to the expansion of the oxygen minimum zone in the world's

oceans, imperilling marine ecosystems. The timing of episodes of climatic upheaval in the Paleogene and the Cretaceous is poorly constrained, as is the role of ocean circulation.

To identify causes of past extreme events, it is essential to obtain tight constraints on the relative timing of climatic processes. Cyclostratigraphic age models are developed from time-series analyses of climate-sensitive data, and are integrated with carbon-isotope, radio-isotopic, bio- and magnetostratigraphic information.

In conjunction, the application of the radiogenic neodymium isotope proxy to marine sediments enables us to identify and follow the behaviour of water masses through time. Ocean circulation likely played a major role in the distribution of heat over the planet, and in the ventilation of the deep ocean.

In this seminar I will present Nd-isotope results from the onset of the Cenozoic greenhouse conditions, as well as from the peak of the Cretaceous hothouse, and their implications for ocean circulation.



Geography and bathymetry 59 million years ago

