Geophysical Research Abstracts,
Vol. 10, EGU2008-A-07541, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-07541
EGU General Assembly 2008

Biometric study of calcareous plankton through late Paleocene-early Eocene: a proxy to decipher climatic signals?

B. De Bernardi,

M. R. Petrizzo

Department of Earth Sciences, University of Milano, Via Mangiagalli 34, 20133, Milan; bianca.debernardi@unimi.it

A high-resolution analysis of sediments recovered at ODP Site 1209B (Shatsky Rise – NW Pacific Ocean) shows a significant change in calcareous plankton morphology and size through the late Paleocene and early Eocene.

This time interval is crucial, both for biotic evolution and environmental changes, being characterized by a phase of global warming and perturbations in the global carbon cycle. Significant modifications in the calcareous plankton morphometry are known in the Phanerozic geological record and have been interpreted as probably connected to marked changes in environmental conditions. However, calcareous plankton size variability also occurred during times of environmental stability. The aim of this study is to understand if the observed changes in size result from adaptative morphologies, malformations or evolutionary changes.

Size measurements of the calcareous nannofossil taxon *Discoaster multiradiatus* were carried out on smear slides by Light Microscope (LM). At least, 100 specimens were measured by using the NIH-IMAGE software in order to document fluctuations in their dimensions. Test diameters were measured to evaluate stratigraphic variations in size in the planktonic foraminifera *Morozovella velascoensis.*

Results from morphometric analyses highlight a clear change in size through time. The relative timing between climate perturbations and biotic evolution in the late

Paleocene-early Eocene and specifically at the onset, during and in the recovery interval of the PETM-CIE indicates that the observed size variations and malformations were strongly influenced by climate instability.