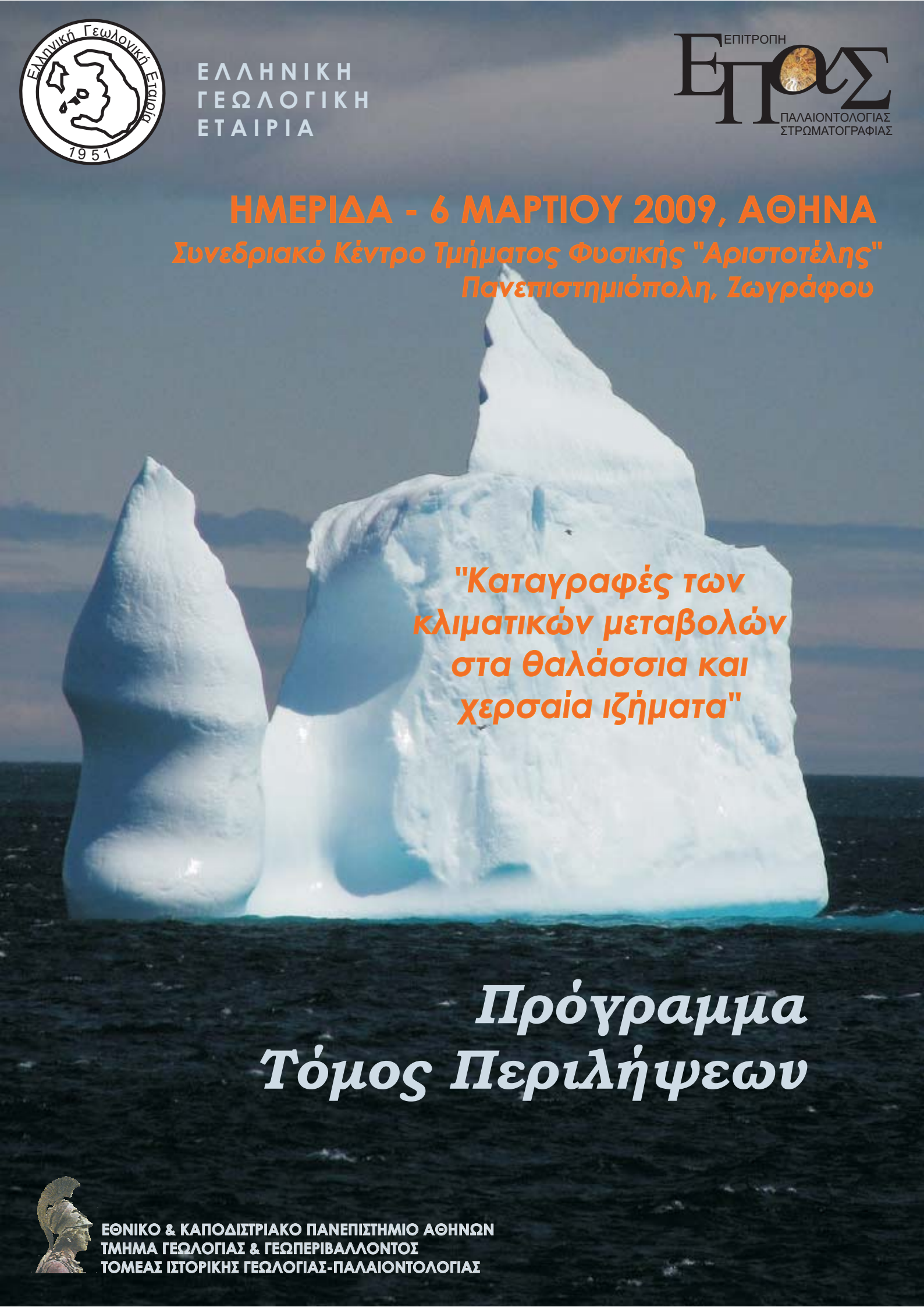

ΕΛΛΗΝΙΚΗ ΓΕΩΛΟΓΙΚΗ ΕΤΑΙΡΙΑ

ΕΠΙΤΡΟΠΗ ΕΠΟΣ ΠΑΛΑΙΟΝΤΟΛΟΓΙΑΣ ΣΤΡΩΜΑΤΟΓΡΑΦΙΑΣ

ΗΜΕΡΙΔΑ - 6 ΜΑΡΤΙΟΥ 2009, ΑΘΗΝΑ

Συνεδριακό Κέντρο Τμήματος Φυσικής "Αριστοτέλης"
Πανεπιστημιόπολη, Ζωγράφου

"Καταγραφές των κλιματικών μεταβολών στα θαλάσσια και χερσαία ιζήματα"

Πρόγραμμα
Τόμος Περιλήψεων

ΕΘΝΙΚΟ & ΚΑΠΟΔΙΣΤΡΙΑΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ
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ΤΟΜΕΑΣ ΙΣΤΟΡΙΚΗΣ ΓΕΩΛΟΓΙΑΣ-ΠΑΛΑΙΟΝΤΟΛΟΓΙΑΣ

ΕΛΛΗΝΙΚΗ ΓΕΩΛΟΓΙΚΗ ΕΤΑΙΡΙΑ

Επιτροπή Παλαιοντολογίας-Στρωματογραφίας

ΗΜΕΡΙΔΑ

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Πανεπιστημιόπολη, Ζωγράφου, Αθήνα
Παρασκευή 6 Μαρτίου 2009

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Περιλήψεις

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Palaeoclimatic changes in the early Late Miocene record of the Ionian islands (western Greece)

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Abstract

The period from Middle to early Late Miocene (15-11 Ma) is regarded as a major period of expansion of the Antarctic ice and a deep-water benthic faunal turnover (e.g. Miller et al., 1991a; Kaiho, 1994). This period is thus a period of major interest in Cenozoic climate development. High-resolution oxygen isotope records have been used to reconstruct the history of the Antarctic ice sheet (e.g. Miller et al., 1987, Miller et al., 1991b, Flower & Kennett, 1995) and have revealed a step-like pattern of ice-volume expansion during that period. Miller et al. (1991a) a) summarized the oxygen isotope stratigraphy for this time interval and indicated four $\delta^{18}O$ maxima labelled Mi3, Mi4, Mi5 and Mi6 events respectively which have been regarded as evidence of ice-growth events. The Mi3 and Mi4 maxima correspond to the early and middle phases of middle Miocene climatic cooling and/or Antarctic ice-sheet expansion (Woodruff et al., 1981), whereas Mi5 has been interpreted to be the first significant ice sheet.

The present study refers to the early Late Miocene (early Tortonian) palaeoclimatic evolution of eastern Mediterranean and more precisely, of the Ionian Sea (Levkas island, Manassi section). Based on previous stable isotope analyses from ocean drilling cores and stratigraphic studies (Turco et al., 2001; Miller et al. 1991a, b; Zachos et al., 2001; Ohta et al., 2003; Holbourn et al., 2004), the early Tortonian (11.54 to 11.21 Ma) is characterized by a stable climate system with an increase of local deep ocean temperatures (Billups & Schrag, 2002), yet interrupted by the global cooling Mi5 event (Miller et al. 1991a). Understanding the early Late Miocene climate is integral to the study of global climate interactions. Sedimentary sequences from the Mediterranean basin are commonly used for studying Cenozoic climate variability as their marine sedimentary outcrops reflect climate changes in the rock record through alternating, rhythmic color and lithological variations.

Our results are based on the analysis of the high-resolution planktonic and benthic foraminiferal and stable isotope records from this section. The data of calcareous plankton are compared with $\delta^{18}O$ variations for Gibliscemi section described by Turco et al. (2001), and for ODP Site 926 described by Turco et al. (2002). This analysis enables us to examine the interactions among the variables (foraminiferal species) and identify a series of palaeoclimatic events of long and short duration that took place in the Mediterranean area during the early Tortonian. Our main objectives are to evaluate the regional and global climatic signal and the faunal and isotope data in order to decipher the driving mechanisms of the middle to late Miocene climate system in detail.

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