

LATE OLIGOCENE (*SPHENOLITHUS CIPEROENSIS* ZONE) - THE AGE OF BEGINNING OF THE TERRIGENOUS DEPOSITS IN KARABURUNI ZONE (PAXOS ZONE), SOUTHWESTERN ALBANIA

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ABSTRACT

The Karaburuni zone (= Sazani zone) situated in southwestern Albania is limited in Kanali Mountain, Karaburuni Mountain and Sazani island (Fig. 1). This zone represents a carbonatic platform including deposits from Late Triassic until Oligocene. The oldest terrigenous deposits belong to Gjuhza Cape outcrop, considered before as Aquitanian age.

Our study, treating the clay- marly deposits of the base of Gjuhza Cape (Kepi i Gjuhezës) outcrop, indicates an older age of the installation of the detrital deposits in Karaburuni zone. Rich calcareous nannofossils associations characterize *Sphenolithus ciproensis* and *Sphenolithus delphix* zones of Vathi (1989, 1993) or CP19b and CN1a subzone of Okada & Bukry (1980). The planktonic foraminifera are abundant and indicate the *Globorotalia kugleri* zone. Finally, the terrigenous sedimentation in Karaburuni zone starts in the Late Oligocene (*Sphenolithus ciproensis* zone).

KEY WORDS: Biostratigraphy, calcareous nannofossils, planktonic foraminifera, Late Oligocene, terrigenous deposits, Karaburuni zone, Albania.

1. INTRODUCTION

The Karaburuni zone (=Sazani zone), the analogues of Paxos zone in Greece or Preapulian zone of Italian geologists, have a limited extension in the southwestern Albania. In the East, this zone has a tectonic contact with Ionian zone, whereas in the West is limited by Ionian Sea.

From the geographic point of view, the Karaburuni zone includes Sazani island, Karaburuni peninsula (Karaburuni Mountain) and Kanali Mountain (Fig. 1). Detailed information is given by Xhafa et al. (this volume).

The geological studies of different aspects (bio-lithostratigraphic, tectonic etc.) carried out in Karaburuni zone have demonstrated the existence of a carbonatic platform since Late Triassic until Oligocene (Gjata et al. 1972; Sota et al. 1980, Brahimi et al. 1992).

In Greece, the study realised by IGRS - IFP (1966), in the analogues Paxos zone, indicated a carbonatic platform until Aquitanian, following by a detrital sedimentation of Miocene age.

The installation of terrigenous sedimentation in Karaburuni zone have been reported in Early Miocene by Gjata et al. (1972). After Sota et al. (1980), the terrigenous deposits starts in Aquitanian.

Our aim consists in clearing up the time of beginning of detrital sedimentation in Karaburuni zone. The outcrop of Gjuhza Cape, situated in the northeast extreme edge of Karaburuni peninsula (Fig. 1), is the only one where the oldest terrigenous sediments can be observed.

The detrital deposits of Gjuhza Cape, transgressive on the Eocene limestones are represented, at the base, by a brecciated limestone cemented by marls following by clays with intercalations of bioclastic limestones beds in the upper part (Fig.2).

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Planktonic foraminiferal data obtained from Gjuhza Cape outcrop allowed Sota et al.:(1980) to attribute an Aqitanian age to these deposits. *Globorotalia kugleri* zone determined there represented a total range zone of the index species.

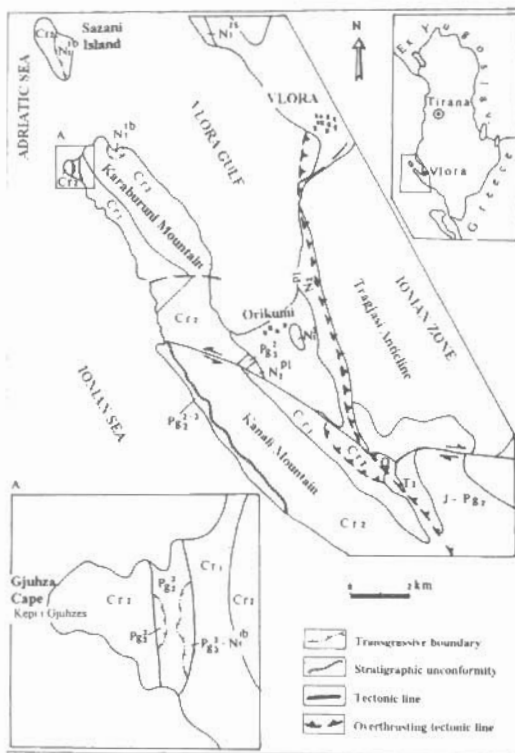


Fig. 1: Geological map of Karaburuni zone

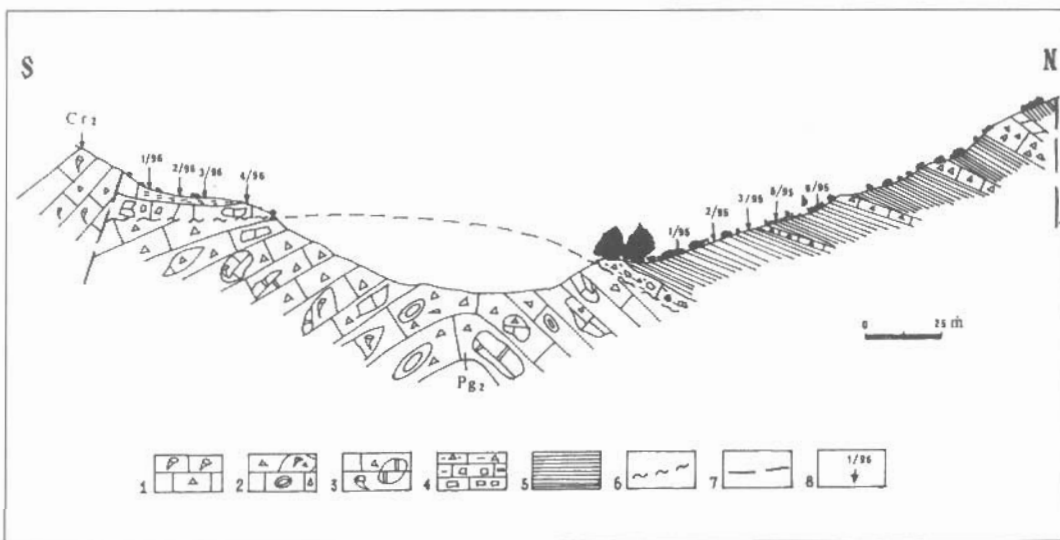


Fig. 2: Schematic profile of gjuhza Cape. 1: Limestone with rudista. 2: Wackestone with nummulites and Discocyclina.3: Dolomiti clastic limestone. 4: Breccious limestone cemented by marly material. 5: Clays, 6: Conglobreccious bare of the clays . 7: Tectonic line. 8: Sample number.

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2. MATERIAL OF STUDY

The samples of this study have been collected during two expeditions, in two successive years, in order to renew the Geological Map of Albania. Thus, the samples numbers 1/95 - 6/95 correspond to the first expedition in July, 1995. The results obtained from these samples were in disagreement with previous data, so the necessity for a detailed biostratigraphical study of this section was evident. In order to realise this, another continuous sampling was effectuated in October 1996. A particular interest has been paid to the marl cement of brecciated limestones situated on the west of the terrigenous deposits sampled a year ago (Fig.2). We collected the samples 1/96 -5/96.

3. BIOSTRATIGRAPHY

3.1 Calcareous nannofossils

The calcareous nannofossil assemblages obtained from the Gjuhza Cape section have been interpreted in terms of our biozonation (Vathi, 1985, 1989, 1993). A correlation with Okada & Bukry (1980) code-number biozonation has been realised, too.

The first set of samples collected and analysed (1/95 - 6/95) yielded rich and identical calcareous nannofossil associations. They consist of *Cyclicargolithus floridanus*, *C. abisectus*, *Dictyococcites bisectus*, *D. hesslandii*, *Coccolithus pelagicus*, *C. eopelagicus*, *Triquetrorhabdulus carinatus*, *Discoaster deflandrei*, *Helicosphaera euphratis*, *H. intermedia*, *H. perch-nielseniae*, *Sphenolithus moriformis*, *S. conicus*, *Ericsonia fenestrata*, *Pyrocyclus hermosus*, *Pontosphaera ovata*. It is to be noted the presence of *Triquetrorhabdulus carinatus*, a very rare species in Ionian zone due to paleogeographical factors (Vathi, 1985; 1987; 1993).

This association with frequent species of *Cyclicargolithus abisectus*, *Dictyococcites bisectus*, *Ericsonia fenestrata* and lacking of *Sphenolithus ciperoensis* and *Helicosphaera carteri* indicates the *Sphenolithus delphix* zone (Vathi, 1989, 1993). This zone is equivalent of CN 1a subzone of Okada & Bukry (1980).

Our concept on Paleogene-Neogene boundary (Vathi, 1987, 1993) is based on the (re)appearance of *Helicosphaera carteri* (which occurs slightly before the first occurrence of *Globoquadrina dehiscens*). So, the *Sphenolithus delphix* zone represents the uppermost part (highest levels) of Late Oligocene.

The second set of samples collected in October 1996 delivered rich or rather rich calcareous nannofossil assemblages, except the 4/96 which resulted barren, the nannofossils are slightly overgrown. The association is composed of *Cyclicargolithus floridanus*, *C. abisectus*, *Coccolithus pelagicus*, *Dictyococcites bisectus*, *D. hesslandii*, *Sphenolithus moriformis*, *S. ciperoensis*, *S. conicus*, *Helicosphaera euphratis* etc. It indicates the *Sphenolithus ciperoensis* zone of Late Oligocene.

3.2 Planktonic foraminifera

The planktonic foraminifera analysis realised in the samples 1/95; 2/95; 3/95; 5/95 and 6/95 delivered rich and well preserved assemblages. Generally the forams of small-medium size predominate.

The assemblages are very similar and consist of *Globigerina tripartita*, *G. venezuelana*, *G. trilocularis*, *G. ciperoensis ciperoensis*, *G. ciperoensis angustumbilicata*, *G. praebulloides*, *Globorotalia kugleri*, *G.pseudokugleri*, *G. opima nana*, *G. aff mayeri*, *Catapsydrax unicavus*, *C. dissimilis dissimilis*, *C. dissimilis ciperoensis*. In the sample 2/95 *Globigerinoides quadrilobatus* is present. The distribution of some species is shown in the Fig.3.

Using the local biozonation (Sadushi, 1987), this association indicates the *Globorotalia kugleri* zone representing the interval between the lower occurrence of *Globorotalia kugleri* and the first appearance of *Globoquadrina dehiscens*.

Upwards, in the thin sections of the sample 12/96, *Globigerinoides trilobus* has been determined. The first occurrence of this species indicates a Burdigalian age.

As conclusion, the planktonic foraminiferal data indicate also the Late Oligocene (*Globorotalia kugleri* zone) - the age of the beginning of the terrigenous deposits in Karaburun zone.

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