

Benthic Foraminifera as recorders of sea level changes in Adriatic Sea

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The study of benthic Foraminifera, carried out in eight cores collected in the middle Adriatic Sea, allowed to follow the sea level changes occurred during the last Deglaciation. For dating the variations occurred in the time space under investigation, the planktonic Foraminifera biostratigraphy of BORSETTI *et al.* 1992 (present issue) has been used.

In the high morphological features (Tremiti Islands) a true shoreline is present at the bottom of two cores (Ad 85-33 and Adr 88-12). In the other cores a sea level change is testified by the variation of the assemblages, when deep indicators are substituted by the shallower ones.

On the basis of planktonic assemblages in three cores from the "Depressione Meso Adriatica" (DMA) IN 68-21, Ad 85-30 and In 68-16, the last de-glacial (to 15,000 yrs B.P.), the Younger Dryas (11,000-10,000 yrs B.P.) and the Holocene have been recognize. Cores IN 68-22, Adr 88-12 and Ad 85-33 contain only Holocenic sediments as testified by the high frequency of *Globigerinoides* ex gr. *ruber* and by the *Globorotalia inflata* peak. In fact these two bioevents are characteristic of Holocene in Adriatic Sea (BORSETTI *et al.* 1992, present issue). Ad 85-33 and Adr 88-12 present a shoreline at the base. Finally Holocene sediments are present only in the upper part of Ad 85-34 and Adr 88-13.

In the DMA core, during the de-glacial period, benthic fauna is characterized by a circalittoral (depth >50 meters) assemblage (*Uvigerina* spp, *Cassidulina laevigata carinata*, *Hyalinea balthica*, *Trifarina angulosa*, *Cibicidoides pachyderma*, *Bulimina* spp and *Miliolids*); during the Younger Dryas time a shallower environment is testified by the disappearance and/or strong decrease of the deeper species and the occurrence of *Elphidium decipiens*. In the Holocene (COLANTONI *et al.*, 1989) the circalittoral assemblage replaced again the Y. D. one.

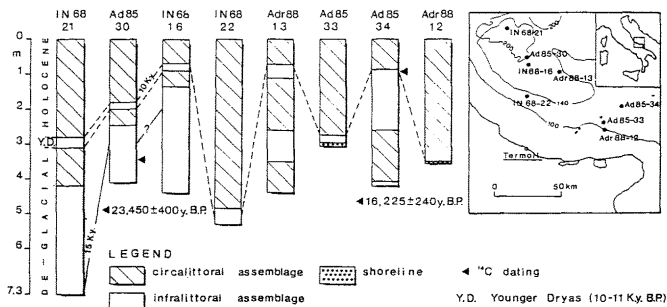
In the core IN 68-22 almost interely circalittoral fauna is present. A slight shallower environment is detected by the occurrence of *Elphidium* spp at the base of the core only.

In the lower part of Ad 85-33 and Adr 88-12 cores we can recognize a true coastline (coarse mollusk remains and little pebbles). A deeping of environment from bottom to top of both the cores is demonstrated by the appearance of an infralittoral (depth < 50 meters) association (*Asterigerinata mamilla*, *Elphidium crispum*, *Ammonia beccarii*, *Nonionella turgida*, *Buccella frigida*) followed by a circalittoral one (*Uvigerina* spp, *Cassidulina laevigata carinata*, *Cibicidoides pachyderma*, *Bulimina* spp and *Brizalina* spp).

Finally Adr 88-13 and Ad 85-34 present an alternance of circalittoral and infralittoral environments and only the uppermost circalittoral assemblage in each core corresponds to the Flandrian transgression.

Therefore we can proposed the following evaluations :

- 1) a sea level rise during the de-glacial interval (15-11,00 yrs B.P.) is testified only in MAD cores, but a shoreline did not form in the sites where cores have been collected
- 2) the Younger Dryas shallower deposits are recorded in the MAD cores, indicating a sea level fall during this time interval. In the others cores, these sediments are missing (Ad 85-34 and Adr 88-13) or not surely identified (Ad 85-33 and Adr 88-12). Reworking fenomena and sediments transfert occurred during the Flandrian transgression processes, may be responsible of these sedimentary hyatuses (ASIOLI and BORSETTI, 1989)
- 3) in every cores Holocene sediments are present and benthic Foraminifera content is indicator of the circalittoral environment.
- 4) The tectonic activity still in the Adriatic sea (COLANTONI *et al.*, 1989) does not allow to extrapolate site by site the shoreline records. Many more data are needed in order to identify and to date the Holocene shorline in the Adriatic sea.



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