

Planktonic Foraminiferal Biochronology during the last 127000 years in the Thyrrenian Sea

¹ A.M. BORSETTI, ¹ L. CAPOTONDI and ² C. VERGNAUD-GRAZZINI

¹Istituto per la Geologia Marina C.N.R., Via Zamboni, BOLOGNA. (Italy)

²Laboratoire d'Océanographie Dynamique et de Climatologie, LODYC, PARIS (France)

The study of 21 cores, collected in different morphology units (perithyrrenian basins, abissal plane and seamounts) evidenced the great complexity of the paleoceanography in this area. The difficulty in identify the local answer to the climatic global changes during the past 127000 yr B.P. is due to the sedimentological setting and to the local microclimes induced by the geomorphology of the area and of its margins. Nevertheless sequences of biostratigraphic events common to entire Thyrrenian sea has been recognized by a local occurrence, or by a significant increase (or decrease) in the percentages of planktonic Foraminiferal species.

On the base of major faunal changes we have identified for the last 127000 yrs B.P. 8 ecozones defined as follow :

8 - very typical interval characterized by presence of *Globigerinoides conglobatus* with a temperate water assemblage (*Globorotalia inflata*, *Globorotalia truncatulinoides*, *Globigerinoides ruber* group);

7 - the total fauna is constituite by "cold species": *Globigerina bulloides*, *Globorotalia scitula* and *Neogloboquadrina pachyderma*;

6 - persistence of "cold species", presence of *Globorotalia inflata* and increasing in the lower part of this interval of *Globorotalia truncatulinoides*;

5 - *Globigerina bulloides*, *Globigerina quinqueloba*, *Neogloboquadrina pachyderma* and *Globorotalia scitula* are dominant species; *G. glutinata* is present in low percentages (10 %). Small and compact species of *Globigerinoides ruber* are present in 2 separated peaks (at about 10-15 %);

4 - in this long interval *Globorotalia scitula* and *Neogloboquadrina pachyderma* are present in percentage at about 20 %; *Globorotalia truncatulinoides*, *Globorotalia inflata* and *Globigerinoides ruber* decrease in the central part of the interval in coincidence of a positive peak of *Globigerina bulloides*;

3 - this ecozone is defined by a peak value in the "warm species": *Globigerina praecalida*, *Globigerina calida*, *Globigerina praedigitata*, *Globigerina digitata* and *Hastigerina siphonifera*;

2 - very short interval characterized by a relative increasing of *Globigerinoides trilobus* and *Globigerinoides sacculifer*, slight increase of *Globigerinoides ruber*;

1 - high frequencies of *Globigerina bulloides*, *Globigerina quinqueloba*, *Globorotalia inflata*, *Globorotalia truncatulinoides*, *Globigerinoides ruber* group and low percentages (5 %) of *Globigerinita glutinata*. High resolution oxygen isotope stratigraphy on four selected cores, allow to date the 8 ecozones as follows :

ecozone 8 - correspond to the isotopic stage 5 and range from 127000 ys B.P. to 78000 yr B.P. ;

ecozone 7 - cold interval between 78000 yr B.P. and the beginning of the last interstadial at 65000 yr B.P.;

ecozone 6 - it represent the last interstadial between 65000 yr E.P. and 28000 yr B.P.;

ecozone 5 - it is the coldest interval and correspond to the last glacial ranging from 28000 yr B.P. to 14000 yr B.P.;

ecozone 4 - this ecozone correspond to the last deglaciation from 14000 yr B.P.. In this interval the positive peak of *Globigerina bulloides* identifie the cold pause of deglaciation occurred around 11000-10000 yr B.P. (Younger Dryas);

ecozone 3 - the abundance of superficial warm association, typical in this interval, is interpreted as the western record of the hidrological levantin situation, responsable of the deposition of sapropel S1. Therefore it represents the time interval between 9000 and 8000 yr B.P.;

ecozone 2 - in this interval, the positive peak of the warm waters *Globigerinoides trilobus* and *Globigerinoides sacculifer* is correlated of the last Climatic Optimum occurred at about 5000-6000 yr B.P. The ecozone therefore ranges from 8 to 5000 yr B.P.;

ecozone 1 - it represents the present living association, started at about 5000 yr B.P.