MARINE ENVIRONMENT
and Nannofossil sp.

NANNOFOSSILS ARE LESS IMPORTANT IN ECOLOGIC CONTROL.

NEARSHORE SPECIES

SHALLOW WATER SEDIMENT NANNOFOSSILS.

THE MOST DIVERSE ASSEMBLAGES, THOSE FROM WARM-WATER AREAS, OCCUR IN DEPOSITS FROM SUBLITTORAL SHELF TO THE BASAL CONTINENTAL SLOPE:

APPROX. DEPTH 50-2000 METERS

BRAARUDOSPHAERA, MICRANTHOLITHUS, PEMMA, AND SCYPHOSPHAERA SPECIES.

SOME SP. CONTROLLED BY WATER TEMPERATURE - GEPHY. OCEANICA, EMILIANIA HAXLEY, CYCL. LEPTOPHORUS

MOST SOLUTION RESISTANT GENERAS (NANNO FROM RED-CLAY DEPOSIT)

DISCOASTER, COCCOLITHUS, CYCLOCOCCOLITHINA, RETICULO-FENESTRA, AND DICTYOCOCCITES, (OCCUR IN NEARLY ALL SAMPLES, SHALLOW AND DEEP: THESE TEXA PERSISTS IN SOME DEEP-OCEAN RED-CLAY DEPOSIT AFTER ALL OTHER CALCITIC MICROFOSSILS HAVE BEEN DISSOLVED.

NANNO ABSENT FROM RED-CLAY DEPOSITS

BRASSRUDOSPHAERA, MICRANTHOLITHUS, TRANSVERSOPONTIS, SCYPHOSPAERA, HELICOPONTOSPHAERA SP.

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COLD WATER NANNO frias.-

COCCOLITHUS PELAGICUS, ISTHMNOLITHUS RECURVUS, ZYGOLITHUS DUBIUS. 65°F.= 18°5 C → 45°F= 7.5°C

COOLER WATER (FAIRLY)

GEPHY. CARIBBIANICA

WARM WATER NANNO cálido

GEPHY. OCEANICA: SPHENOLITHUS AND HELICOPONTOSPHAERA

SPECIES DID NOT SEE IN COLD WATER

ABSTRACT

This Nannofacies study, with a new methodology that uses both nannoflora and other compound in the residue, defined five new association valid for paleoenvironmental interpretation.

Here, Nannofacies are difined as an assemblages of organic and inorganic elements. Organics components include: nannofossils, sporomorphus, dinoflagellates, acritarchs, algae cyst, forams, and organic matter. Inorganics elements are defined based on composition, texture (grain size, sorting, preservation) and abundance.

Nannofacies I and II are characterized by a) absence of planktic organisms (nannoplankton and plancktic forams), b) remains of bentic organisms, c) abundant organic matter and d) presence of authigenic pyrite and abundance of detritic pyrite. These nannofacies suggest deposition in coastal and fluvio-marine environments.

Nannofacies III, IV and V are characterized by a) varying percentages of different plancktic organisms, b) presence of different types of organic matter and c) occurrence of minerals (e.g., glauconite, pyrite). These nannofacies indicate deposition in marine environments (shelf, hemipelagic and pelagic respectively).

The identication of these new nannofacies have been used in the determination of the sequence stratigraphic framework in differents areas (e.g., Lake Maracaibo basin, Falcon basin etc.) and has been specially usefull in the recognition of maximum flooding surfaces (MFS) and prediction of possible sequence boundaries (SB). Development of a new methodology, such as the one present here, will contribute to reduce the exploratory risk in new and mature areas.

OBJETIVE

- To Develop a Method that Will:

  a.- Get the most information from each sample

  b.- Extend the spectrum of information to other disciplines

  c.- Diversify the contribution of the nannoplaktologist

CONCLUSIONS

* Nannofacies I and II indicate deposition in coastal and fluvio-marine environments.

* Nannofacies III, IV and V suggest deposits in marine (shelf, hemipelagic, pelagic repectively) environments.

* Recognition of maximum flooding surfaces "MFS" and flooding surface "FS" have been improved by using the presence or not of these nannofacies

* The use of both organic and inorganic elements should be included in any reliable study of nannofacies.

This study shows that the development of new tenichniques, such as the one presented here, will reduce the exploratory risk of new and mature areas.

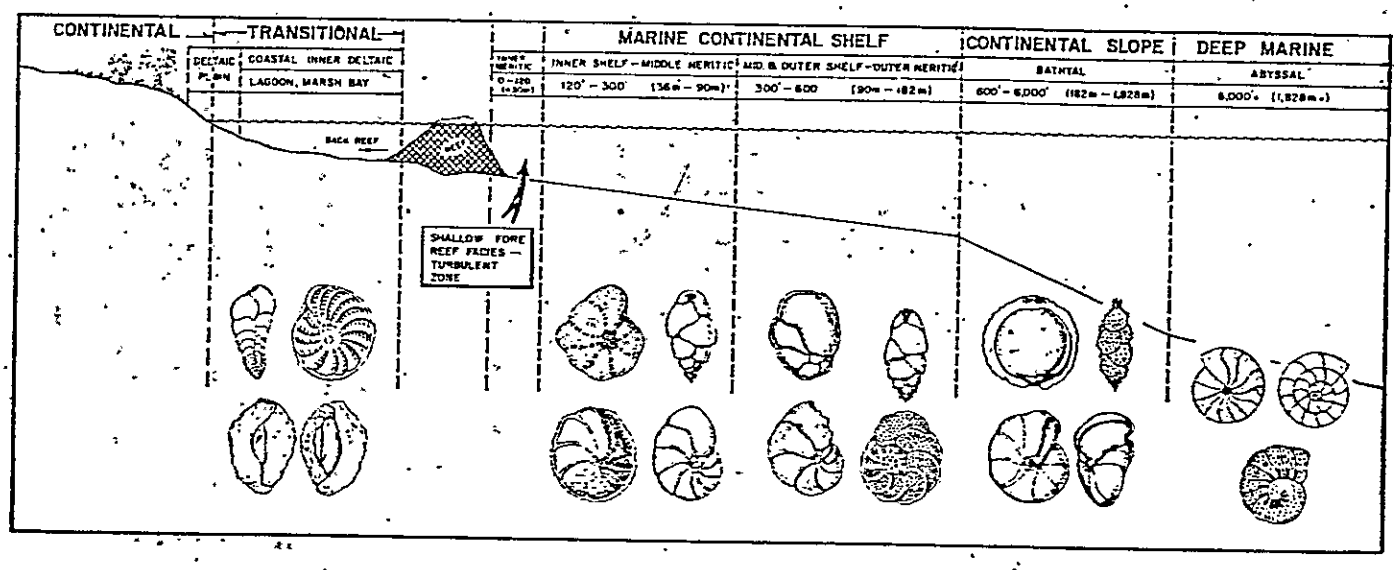


Figure 2. Diagrammatic illustration showing depositional environments based on the occurrence and distribution of benthonic foraminifera.

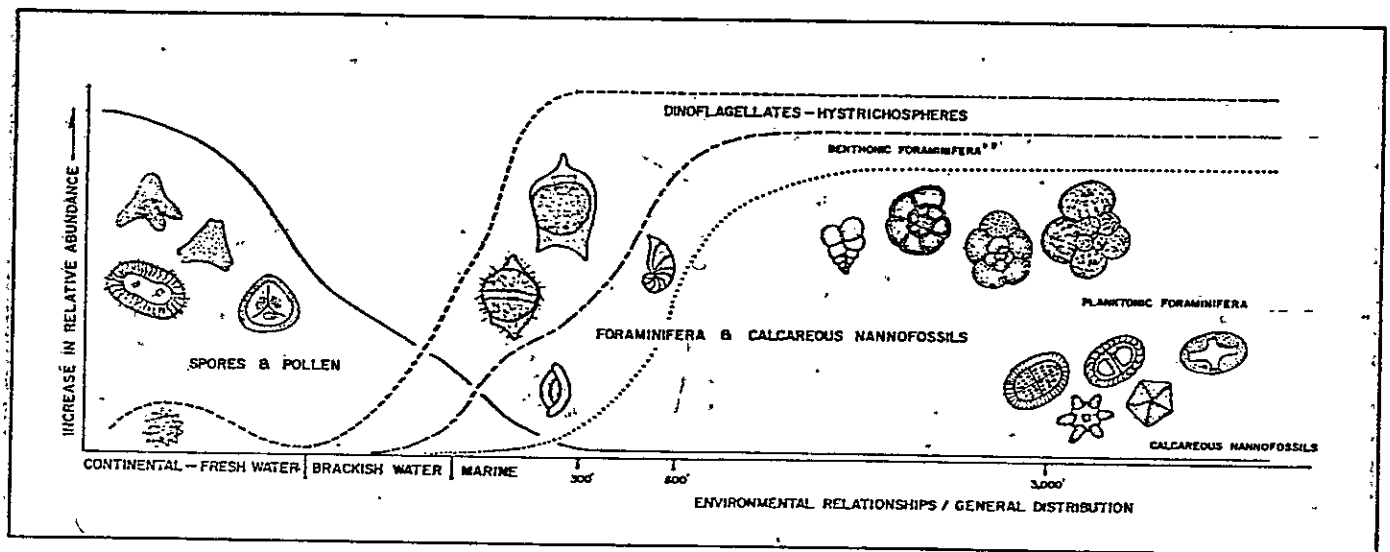
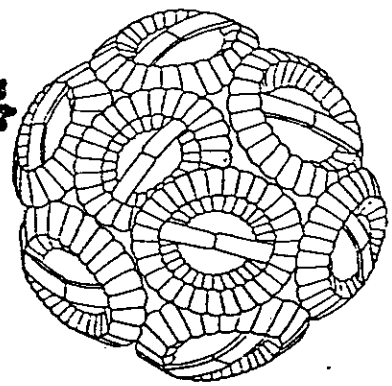


Figure 3. Environmental relationship, general distribution, and relative abundances of microfossils in continental and marine environments.

Nannofossils

1. Carbonate & pelagic Sediment
2. Distributed near-shore to 4000 m
3. Tropical Subtropical low latitudes. less in High latitudes 40°S – 40°N
4. Warm & Cold Water 65°F = 18°5 C



Diagrammatic illustration of a coccolithophore. The individual skeletal elements, coccoliths, illustrated here represent the genus Gephyrocapsa sp. Magnification X 10,000.

Nannofacies

I fluvio deltaic → Sporomorfos, pirita detrítica

I Shallow marine

I Shelf → aparece "humic gels" = "amorphus", se empiezan a observar fósiles destrozados

I hemipelagic

I pelagic

Material orgánico { fósil
materia orgánica { de tipo algal
de tipo terrígeno } Conteo de materia orgánica 6 líneas continuas

Material inorgánico { Pirita, glauconita, calcita, etc. ..

Paleoenvironments

	shelf	hemipelagic	pelagic
Discoaster	1%	1,5%	59%
Helicosphaera	5%	5%	5%
pentalithus	12%	17%	15%
Microforaminíferos	49%	79%	20%
Vegetal debris	33%	1%	1%
	100%	100%	

Relación con paleobatimetría de Ingle (foraminíferos)

Esquemas presentes

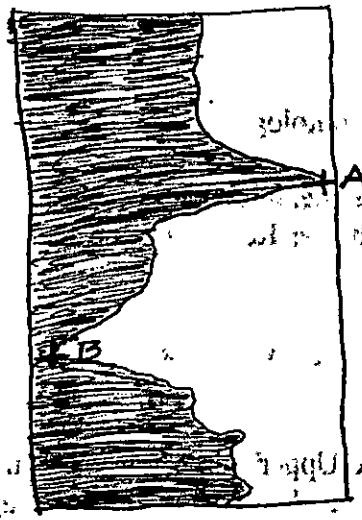
Planctic organisms		Material Inorgánico			
nannoplan diversidad	abundancia	Pyrita detrítica	Pirita authigénica	Glauconita	material clástico

Esquemas presentes.

Organic material

amorphus organic matter	sparse organic matter	- bad sorting organic matter

Percentual curve of marine Vs terrigenous



material organico marino

material organico terrígenos

+A máximo relativo

+B mínimo relativo

Pudiendose determinar diversos eventos transgresivos y regresivos.