



# International School on Foraminifera

## 3<sup>rd</sup> Course

Urbino, 7-16 APRIL, 2010

### First Circular

#### Course Description

The 3<sup>rd</sup> Course on Foraminifera is designed to provide an overview of the Taxonomy, Ecology, Biodiversity and Geological History of Benthic and Planktonic Foraminifera. This intensive course is intended for students interested in Micropalaeontology, Palaeoceanography, Palaeoecology, and Climate History. The aim is to provide a primer on the study foraminifera and examples of how foraminifera can be used as palaeoenvironmental and palaeoceanographical proxies. We review the current classification schemes of the foraminifera, discuss Ecology and Life History, review their usefulness for Biostratigraphical applications, and use case studies to investigate the geological history of the group with lab sessions.

#### Course Structure

Two distinct courses are planned: Benthic Foraminiferal Course (7-11 April) and Planktonic Foraminiferal Course (12-16 April).

#### Teaching Format

The course consists of lectures and practical classes covering the taxonomy, distribution, and ecology and paleoecology of foraminifera. Microscope lab sessions provide the opportunity for participants to learn the foraminiferal genera and species, and view Cretaceous to Neogene foraminiferal assemblages from Petroleum Exploration areas and ODP sites as well as Quaternary and modern assemblages. Course materials include numerous reprints of classic papers, distributed on CD-Rom. We will also demonstrate a pre-release version of the new "Catalogue of Agglutinated Foraminiferal Genera".

#### Courses Outline

##### Benthic Foraminifera

###### *Day 1 (7 April Wednesday)*

- Review of benthic Foraminiferal Suborders
- Morphology and Classification of benthic Foraminifera
- Morphogroups and functional morphology
- Ecology and Distribution of benthic Foraminifera
- Lab: Data bases, Taxonomy of benthic foraminiferal suborders

###### *Day 2 (8 April Thursday)*

- Community Structure, Life History, and Reproduction
- Oceanographic proxies, benthic foraminiferal microhabitats, and productivity/oxygenation
- Benthic foraminifera and water mass properties
- Lab: Modern smaller benthic foraminifera: Foraminiferal genera and assemblages
- The Adriatic and the Marmara Seas

*Day 3 (9 April Friday)*

Caribbean shallow water benthic Foraminifera  
Biostratigraphy and Paleocology of benthic foraminifera  
The ODP record, K/Pg and Eoc/Olig boundaries  
Lab: A review of Jurassic to Cretaceous faunas

*Day 4 (10 April Saturday)*

Cenozoic Paleooceanographic events and smaller benthic foraminifera  
Neogene of West Africa and Gulf of Mexico: The ACEX Arctic Drilling Expedition  
Lab: The Paleogene record; North Sea, Trinidad, Angola, Carpathians, Gubbio  
Social Dinner

*Day 5 (11 April Sunday)*

Morning field excursion to Gubbio (Contessa and Bottaccione sections)  
Afternoon tourist visit to Gubbio

Special Lectures:

Biotic effects on benthic foraminiferal communities of Cretaceous and Paleogene climate, volcanism, and impacts  
Upper Cretaceous DWAF in Contessa Highway Section and Romanian Eastern Carpathians

### **Planktonic Foraminifera**

*Day 6 (12 April Monday)*

Introduction to Planktonic Foraminiferal Classification  
Modern Planktonic Foraminifera  
Taxonomy of modern planktonic foraminifera  
Structure of cytoplasm, Feeding, symbionts and growth  
Reproductive, seasonal, and diurnal cycles depth habitats  
Origin of Planktonic Foraminifera  
Biogeography of planktonic foraminifera  
Faunal Provinces, Climatic Zones and Water Masses  
Lab: Recent assemblages - wall structures - morphometrics

*Day 7 (13 April Tuesday)*

Cretaceous Planktonic Foraminifera  
Biostratigraphy  
Notes on Paleooceanography  
Lab: Cretaceous index species

*Day 8 (14 April Wednesday)*

Paleogene Planktonic Foraminifera  
Biostratigraphy  
Notes on Paleooceanography  
Lab: Paleogene index species

*Day 9 (15 April Thursday)*

Neogene Planktonic Foraminifera  
Miocene and Pliocene Planktonic Foraminifera  
Pleistocene Planktonic Foraminifera  
Biochronology and Zonal schemes  
Lab: Miocene index species - Pliocene-Pleistocene index species  
Social Dinner

*Day 10 (16 April Friday)*

Field excursion to the Massignano GSSP for the Eocene-Oligocene boundary and the K-T boundary at Monte Conero

Special Lectures:

The Dan C-2 event at Contessa Highway Section

Biotic effects on planktonic foraminiferal communities of Cretaceous and Paleogene climate, volcanism, and impacts

### **Lectures**

Michael A. Kaminski, Department of Earth Sciences, University College London

Rodolfo Coccioni, DiSUAN, Università degli Studi di Urbino "Carlo Bo"

Isabella Premoli Silva, Department of Earth Sciences, University of Milan

Maria Rose Petrizzo, Department of Earth Sciences, University of Milan

Fabrizio Frontalini, DiSUAN, Università degli Studi di Urbino "Carlo Bo"

Claudia Cetaan, Institute of Geological Sciences, Polish Academy of Sciences, Krakow

**Min number of participants: 10**

**Final deadline March 15th, 2010**

### **Registration fees**

Early registration (application sent and payment before February 5th, 2010)

PhD/MSc Students:

1<sup>st</sup> or 2<sup>nd</sup> course     £ 260

Both courses             £ 420

Academic/Industrial staff :

1<sup>st</sup> or 2<sup>nd</sup> course     £ 350

Both courses             £ 600

Late registration (application and payment sent after February 5th, 2010)

PhD/MSc Students:

1<sup>st</sup> or 2<sup>nd</sup> course     £ 300

Both courses             £ 500

Academic/Industrial staff :

1<sup>st</sup> or 2<sup>nd</sup> course     £ 400

Both courses             £ 700

The fee includes:

- lectures and lecture notes
- refreshment
- excursions
- social dinners (one for each course)

### **How to make an application**

Registration must be done by submitting the application form to [fabrizio.frontalini@uniurb.it](mailto:fabrizio.frontalini@uniurb.it) or (fax) to (+39) 0722 304220.

## **Correspondence and information:**

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## **Requirements**

The course is primarily intended for young researchers at the PhD or MSc stages of their careers, working with foraminifera or meiofauna. Applicants will primarily be selected on the basis of the relevance of the course for their current work.

## **Location**

The course will be held in Urbino at the "Collegio del Tridente". The "Collegio del Tridente" is less than 1km. from the historic centre of Urbino (about 5-10 minutes walk), and is connected to the centre of the city by a shuttle service leaving from Borgo Mercatale (where the buses from Pesaro stop).

## **Accommodation and meal**

It is possible for participants to accommodate at the "Collegio del Colle" (University Hall, two minutes walking from the Collegio del Tridente). All the rooms are single and have en-suite bathrooms. The rooms are furnished, clean and comfortable. The cost of the accommodation is €18 per night including breakfast. Meals may be obtained by a rechargeable card (it will be provided for all participants) at the nearby university residential block "Collegio del Tridente" or in the "Mensa del Duca" (town centre). The cost is either €10 for a complete meal (first course, second course, side dish, bread, fruit and water) or €6 for a Cibus meal (main course, two side dishes, bread, fruit and water).

**The second circular** with detailed information about the course is scheduled to be distributed on February 2010 and will be sent to people who answered the first one.

We look forward to seeing you in Urbino!

**Dr. Frontalini Fabrizio**