

*Training offer*

# Applied Biostratigraphy



This course is designed to provide industry professionals an understanding of the Biostratigraphy concepts and methods relevant to Petroleum Exploration and Production. It is useful for upstream professionals who are interested in optimally utilizing biostratigraphic data as a predictive tool in sedimentary basins and for identifying hydrocarbon plays such as Exploration and Development Geologists, Seismic Interpreters, Sedimentologists, Petrophysicists and post-graduate students.

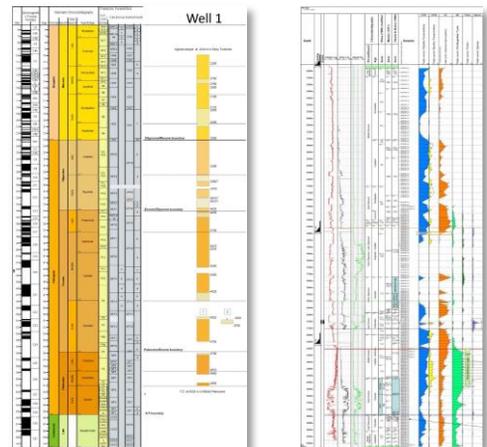
Available as in-house or public venue course. 2 to 5 days.

## Objectives

- To gain knowledge of the different microfossil groups and in which ages and palaeoenvironments they can be utilized
- To explore the concepts and applications of chrono-, litho-, biostratigraphy and geochronology.
- To develop an understanding of how biostratigraphical data can be integrated with other geological data to optimize its use as an interpretative tool
- To interpret palaeoenvironment of deposition by using biostratigraphical assemblages
- To use biostratigraphy as a predictive tool in exploration and development



*Classroom lectures*



*Hands-on exercises with real data*

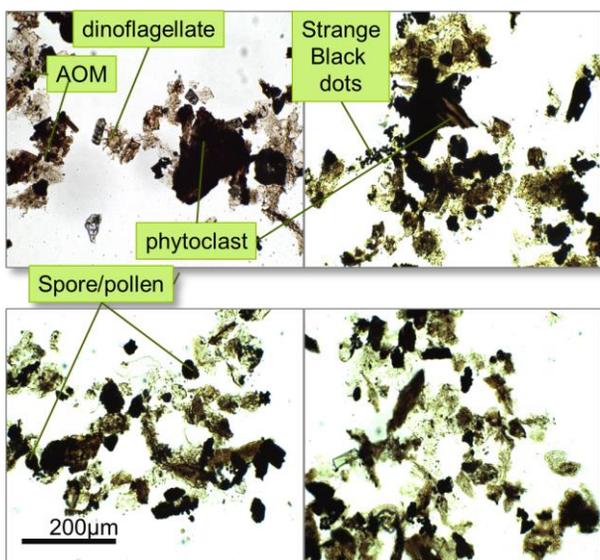
# Training methodology

This course is based on classroom lectures and presentations, including case studies and practical exercises. Real data is used to allow participants to interpret biostratigraphic data in terms of sequence stratigraphy, basin sediment fill and paleoenvironments. An optional microscope session (logistics allowing) gives participants hands-on experience to source rock characterization and biostratigraphic and paleoenvironmental interpretation.

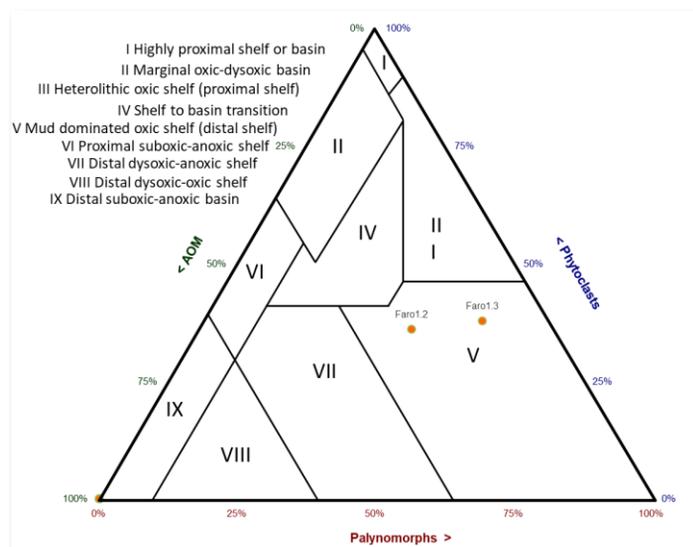
## Who Should Attend?

Industry professionals that deal with Biostratigraphy regularly and want to know more, including:

- Young geoscientists and Post-graduate students
- Exploration Geologists
- Development Geologists
- Seismic Interpreters
- Sedimentologists
- Petrophysicists
- Technical Support Professionals



Microscope sessions exercises



Paleoenvironmental interpretation

# Course contents

## Stratigraphy and an Introduction to Micropaleontology

### The Laws of Stratigraphy

- Age dating methods for sediments and igneous Rocks
- The stratigraphical column and Chronostratigraphy
- The different microfossil groups and preparation techniques
- Organic microfossils (palynomorphs) including Acritarchs, Chitinozoans, Dinoflagellates, Pollen and Spores
- Inorganic microfossils including microforaminifera and ostracoda

## Biostratigraphy

- Microfossil evolution through the stratigraphical Column
- Building stratigraphical range charts
- First downhole occurrence, last downhole occurrence, fossil assemblages
- Numerical methods, abundance increases and maxima
- Index fossils
- Stratigraphical type sections and the relation between Biostratigraphy and Chronostratigraphy

## Biostratigraphical correlations and correlation Techniques

- Pitfalls using biostratigraphical data, downhole caving, reworking, contamination
- Definition of biozones
- Integration of sedimentological and petrographical data
- The integration of geochemical information
- Identification of unconformities / hiatus in the sequences

## Biostratigraphy, paleoenvironments and Sequence Stratigraphy

- Using Micropalaeontology for palaeoenvironmental interpretation
- Marine microfossils vs. non-marine microfossils
- Preservation of microfossil groups and different lithologies
- Definition of water depth from the different fossil groups
- The identification of sequence boundaries using biostratigraphical Data
- Using biostratigraphical data to identify condensed sequences and maximum flooding surfaces
- Using biostratigraphical data to identify low stand System and high stand system tracts

## Play definition using Play Based Exploration techniques

### Hydrocarbon Play Definition

- Integrated Biostratigraphy and its use in Play Based Exploration Techniques
- The Deltaic to marine Cretaceous Alagamar Play in Potiguar Basin, Equatorial Marginal of Brazil
- The Cenozoic deepwater turbidites and associated salt play, Lower Congo Basin, Angola
- The Early Silurian Hot shales of the Arabian plate, source rock characterization

# About Chronosurveys

Chronosurveys brings together the best of the Oil & Gas Industry and Academia. We are a group of consultants based in Portugal with experience in Oil & Gas and specialist researchers in Academia that provide integrated services in Stratigraphy, Source Rock evaluation and other Petroleum Geology disciplines. Our services include:

- Biostratigraphy
  - Palynology
  - Nannofossils
  - Micropaleontology (forams)
  - Conodonts
  - Other disciplines (SSF, metamorphic terranes, etc)
  - Review of vintage reports
- Source rock evaluation
  - Organic geochemistry (TOC, RockEval)
  - Thermal maturity (vitrinite reflectance, spore colour, fluorescence)
  - Visual kerogen typing
- Seismic interpretation and prospect generation
  - Data room evaluations
  - Regional prospectivity
  - Volumetrics and risking
- Stratigraphy and reservoir geology
  - Well correlation
  - Petrographic descriptions
  - XRD
- Multiclient regional prospectivity reports
  - Dynamic GIS project (and webGIS version)
  - Petroleum system evaluation with plays, GDE and CRS maps, well data, seismic and cross-sections, outcrop data, source rock and reservoir parameters
- Training
  - In house and offsite training courses (biostratigraphy, seismic interpretation, petroleum geology)
  - Field trips in Portugal
  - Geo-Historical tours of Lisbon

We are available to discuss further details in a Zoom/Teams meeting or by email: [info@chronosurveys.com](mailto:info@chronosurveys.com)