WHO SHOULD ATTEND

Anyone with an interest in subsurface geology which requires correlation skills. Geoscientists involved in resource asset prediction, finding, characterising and exploiting.

Postgraduate students (MSc, PhD) and early-mid career staff in the Energy Industry.

Geoscientists/engineers working in the Energy Transition interested in developing Advantaged Hydrocarbons, geothermal, wind-power or mitigation projects such as CCUS etc.

Previous knowledge of biostratigraphy or paleontology is not necessary, and this course does not teach you how to recognise and identify fossils, but to understand paleo data.

NERC-CDT students working through an exercise on a sequence-stratigraphic breakdown of a borehole in the Gulf of Mexico.

The course has been run several times for the NERC-Centre for Doctoral Training program, for Industry (operating and service companies), at conferences/meetings such as "Forams 2018" (Edinburgh) and AAPG (London) and at numerous universities, generally at Masters-level Petroleum Geoscience or related courses (e.g., Manchester, Royal Holloway, Aberdeen, Herriot-Watt, UBD Brunei & Chulalongkorn (Bangkok)).

COURSE TUTORS (SELECTION)

The course will be delivered by professionals from a wide range of backgrounds with operators, consultancies, universities and government agencies, each with over 25 years of experience as Applied Biostratigraphers including...

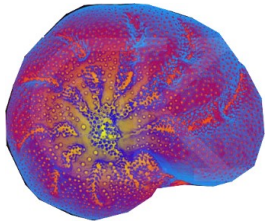
Dr Mike Bidgood (GSS Geoscience Ltd., UK)

Dr Emma Sheldon (GEUS, Denmark)

Dr Mike Simmons (Halliburton, NHM, UK)

Dr Manuel Vieira (Aker BP, Norway)

Dr Matt Wakefield (Lealt Stratigraphy Ltd., UK)



INITIAL CONTACT

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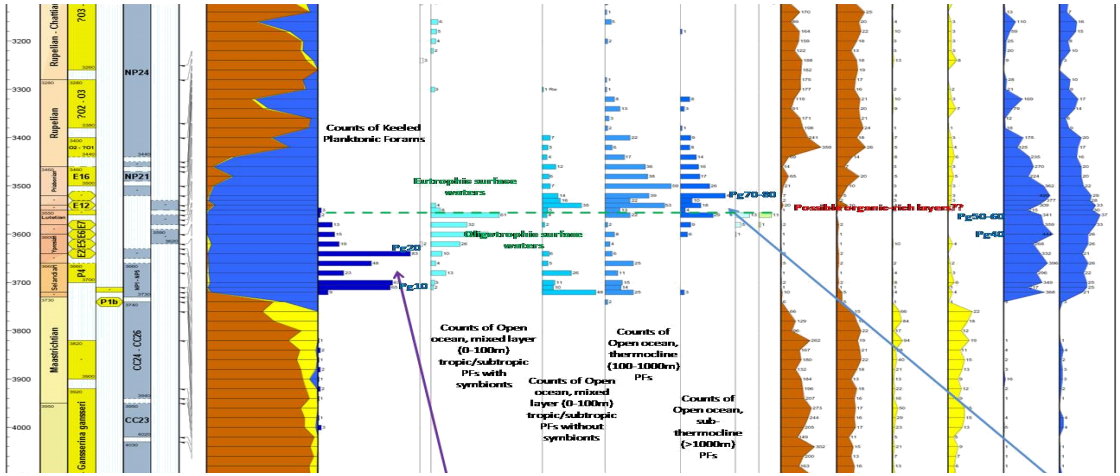
APPLIED BIOSTRATIGRAPHY

A Practical Subsurface Tool for the Energy Transition

Subsurface Characterisation Informed by Biostratigraphy Can Be Captured in Digital Earth Models.



The subsurface is at the heart of the energy transition. Its characterisation is essential to locate resources, optimise storage and safely and effectively install technology.

Biostratigraphy (the study of fossils with a view to their use in correlation and paleoenvironmental determination) remains a key tool for unlocking our understanding of the subsurface, and underpins almost every aspect of modern stratigraphic geoscience.

Biostratigraphic techniques are applicable at a very wide range of scales, from global perspectives which demonstrate the synchronicity of events like eustatic sea level change; through basin-scale applications such as the prediction, identification and characterisation of play fairways and prospects; down to the field-level of an individual rock unit such as a reservoir, aquifer or carbon-capture target and how best to predict, characterise and develop it.

As a consequence, biostratigraphy impacts on many other topics within geoscience such as sequence stratigraphy, play-based exploration, operational applications and drilling strategies, and in the energy transition as a whole (e.g., saline aquifer mapping, wind -farm geotechnical, CCUS, geothermal etc.) as well as civil engineering projects (e.g. tunnels, foundations etc.).

Among other practical exercises you will be…

- Using biostratigraphic insights into age-calibration, correlation and paleoenvironmental signals to combine these into sequence stratigraphic frameworks to develop *predictive* sequence stratigraphic models. These draw upon examples from Cretaceous carbonate systems in the Middle East and Cenozoic clastic systems in the Gulf of Mexico.
- Using subtle changes in biostratigraphic abundance data to perform high-resolution subsurface correlation between two North Sea boreholes to determine the potential extent of a recently discovered resource (“geobody”).
- Continuously evaluating a “real time” stream of incoming biostratigraphic data to “biosteer” a horizontal borehole, making operational decisions so as to drill the borehole in the safest and most efficient way.

Accompanying these practical exercises is a series of talks which introduce some basic core principles of biostratigraphy including the concept of stratigraphic correlation, paleoenvironmental determination and combining the two using sequence stratigraphy. We will also demonstrate the uses of biostratigraphy in operational (i.e., drilling) situations and its impact on safety, engineering decisions and the consequent value of assets.

Importantly, we will demonstrate how applied biostratigraphic techniques developed during the “hydrocarbons era” can be equally applied to geoscience projects in the Energy Transition and in engineering geoscience.