An Introduction to Petroleum Systems and Petroleum Geology

A Basic to Intermediate Level Course

Course Objective
The objective of this course is provide geoscientists working up prospects on acreage-based projects (e.g. specific licence rounds or farm in evaluations) to understand the local prospectivity within the context of basin type (plate tectonic, structural and stratigraphic factors) and petroleum system type (source kitchen, charge, migration and entrapment characteristics).

Course Outline
In this introduction to Petroleum Geology the subject is approached from the point of view of Petroleum System Analysis. In this approach the geology of source kitchens is discussed first, including the origin and characteristics of organic rich source rock intervals in the stratigraphic record and their burial and maturation history through geological time. Secondly the geology of reservoir/ seal pairs is covered, including an exposition of sequence stratigraphic principles. Thirdly the geology of traps is discussed; the structural characteristics of basin types described within a plate tectonic setting (e.g. compressional versus extensional etc) and of typical trapping mechanisms within these different tectonic settings, are covered. Finally a classification of global petroleum systems is presented with statistics on the size of typical petroleum accumulations. Learning is by way of a mixture of lectures and exercises using actual examples.

Who Should Attend
Geoscientists (geologists, geophysicists and petrophysicists) with one to 10 years experience wishing to understand specific acreage-based projects within a global, geological and petroleum system framework.

What You will Learn
How to interpret regional stratigraphy to predict likely source rock intervals.
How to use laboratory analyses of source rock samples and basin modelling data to create source kitchen models and predict hydrocarbon phase and maturation timing.
How to build sequence stratigraphic models on a regional and local basis and use these for identification, areal distribution and quality assessment of reservoir/ seal pairs and migration conduits.
How to assess trap potential and effectiveness.
How to define petroleum systems and make realistic predictions of likely size of petroleum accumulations.

Course Duration – 5 days