

# Tectono-sedimentary architecture and modelling applied to exploration, carbon sequestration and fluid flow

## Intended audience

Any geoscientist with a working interest in or requirement to understand the relationship between facies development, tectonic control, fluid flow, fluid flow barriers, fault development and linkage. The course will be particularly relevant to geoscientists in the fields of petroleum exploration, carbon sequestration and radioactive waste disposal. It is suitable for specialist sedimentologists, structural geologists, geophysicists and general geologists.

## Course objectives

To enable participants to:

- Observe and interpret basin-scale sedimentary architecture and facies relationships of a fluvial to near offshore system in superbly exposed localities.
- Relate facies development to relative sea level changes and tectonic control in the hinterland.
- Observe the development of salt walls and diapirs, and understand their effect on sedimentation, halokinetic unconformity development and the structural fragmentation of surrounding strata.
- Observe, measure and model extensional fault relationships in the field, at a range of scales from outcrop to basin.
- Examine and analyse three-dimensional structural modelling techniques commonly applied to the analysis of both two-dimensional and three-dimensional remotely-sensed subsurface data.
- Develop concepts and models of extension and associated sedimentation that are applicable on a variety of scales and to many geological terrains of the UK and elsewhere.
- Examine the effects of faulting and three-dimensional fault relationships on the syn-rift sedimentary fill of basins and the migration of economic fluids (hydrocarbons, mineralising fluids, water) and injected CO<sub>2</sub>, and to develop three-dimensional models of the ways in which structure can aid or inhibit migration.

## Course duration

9.5 days (including travel)

## Delivery mode

Field-based course

## Course fee

Dependent on seasonal price fluctuations and exchange rates

It is expected that course attendees make their own travel arrangements to and from Salt Lake City, Utah

## Date(s)

Summer

## Location

Utah, USA

