

# SEQUENCE STRATIGRAPHY AND SEISMIC STRATIGRAPHY

## GEP007

### COURSE DESCRIPTION

Seismic data offer more than structural information only; it can help defining the chronostratigraphic framework of a sedimentary basin fill and give valuable information on facies distributions within depositional sequences identified. Based on this it allows making reservoir predictions both in exploration and production working domains. The integrated approach permits detailed reconstruction of the basin fill history and based on this helps delineating flow units within a reservoir sequence. The range in observation scale makes the tool useful for basin analysis and reservoir modelling. The technique is essential for modern seismic reservoir characterisation studies adopting a multi-disciplinary approach.

### COURSE GOAL

To enhance the participants' knowledge, skills and abilities necessary to identify different depositional environments from seismic data, predict facies and gross lithological units (reservoir and seal pairs), estimate paleo water depths, and evaluate subsidence trends and baselevel changes.

### COURSE OBJECTIVES

By the end of this course, participant will be able to:

- To develop the basic concepts of sequence stratigraphy and apply these principles to predict the reservoir characteristics.
- To identify stratigraphic sequences.
- To implement seismic reflection generations.

### WHO SHOULD ATTEND

Geophysicists, Geologists, Explorationists, petroleum and Reservoir engineers, Supervisors conserved with basin analysis and reservoir evaluation.

### COURSE DURATION

5 Working Days

### COURSE OUTLINES

1. **General Concepts**
  - Sequence stratigraphy.
  - Stratigraphy.

- Seismic stratigraphy.
- Seismic sequence stratigraphy.

## **2. Cyclostratigraphy**

- Types of cycles.
- Duration of stratigraphic cycles.
- Events.
- Amplitudes and scales.
- Causes of cycles.
- Climatic effect.

## **3. The Making of a Stratigraphic Sequence**

- Interglacial warm period –Sea level high stand.
- Glacial cooling period – Falling sea level.
- Glacial maxims- Sea level low stand.
- Global warming period – Rising sea level.

## **4. Sequence Stratigraphy**

- Relative sea level components and accommodation space.
- Depositional geometries of stratigraphic sequences.
- Carbonate sequence stratigraphic models.
- Classic sequence stratigraphic model.
- Chronostratigraphic and lithostratigraphy.

## **5. Interpretation of Stratigraphic Sequences**

- Integrated interpretation procedures.
- Seismic profiles.
- Well logs and cores.
- High – resolution biostratigraphy.
- Sea level cycle charts.
- Prediction of lithofacies and depositional environments.
- Reservoir exploration and production.

## **6. Conclusions**

- The model.
- Nomenclature.
- Sea level curves and global eustasy.

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