

## **Title: Understanding Carbonates for Sustainability and the Energy Transition (Characterizing Carbonate Geobodies)**

1-day Short Course (8:30 am to 4:30 pm with 45 min for lunch)

**Objective:** to provide an overview of sedimentology and stratigraphy, focusing on fluid flow in carbonate rocks that impact carbon capture and sequestration, extraction of fossil fuel and energy minerals, and water resources.

### **Syllabus:**

- 1) Introduction to Carbonate Sediments
- 2) Carbonate Depositional Systems
- 3) Pore Types, Diagenetic Processes and Environments
- 4) Seismic Interpretation of Carbonates
- 5) Concepts for Exploration, CCS and others

### **Abstract:**

Carbonate reservoir rocks host hydrocarbons and mineral deposits as well as being a potential sink for carbon capture. However, understanding and predicting lateral and vertical variability of carbonates are challenging. This course is designed to inform your ability to make those predictions. This full-day short course reviews the basics of carbonate sedimentology and stratigraphy, including sediment components, depositional environments, stratigraphic successions, and seismic architectures. At this pivotal time of energy transition, attendees will gain an appreciation for the potential of carbonates not just as reservoirs, but as important records of earth history.

### **Leaders:**

**Rob Forkner** - Rob earned his PhD in Geology from the University of Texas at Austin in 2007, studying cyclostratigraphy in the Dolomite Alps under Bob Goldhammer. Rob has worked for several multinational companies, including Maersk Oil and Gas (Copenhagen, DK), Shell carbonate production research (Rijswijk, NL), and Statoil/Equinor North American Exploration Research (Austin, Texas, USA). Currently, Rob works with Blackdiamond Exploration LLC as a consulting geologist, geochemist, and data scientist. Contact: [rforkner@blackdiamond-exploration.com](mailto:rforkner@blackdiamond-exploration.com)

**Jean Hsieh** - Jean received her B.Sc. (1987) in Geology from Carleton University in Ottawa, Canada, and her PhD (1997) in Geology from the California Institute of Technology. In 1999, Jean joined Texaco which became Chevron the following year. In 2011, she began as a carbonate sedimentologist with Talisman Energy Inc. which was subsequently acquired by Repsol in 2015. She is currently working with Sedimentary Geology Consultants as a consulting geologist. During her 20+ years in industry, she has provided stratigraphic support for exploration and production projects in west Texas, West Africa, Kazakhstan, Turkey, Ukraine, Turkmenistan, the Middle East, and Southeast Asia. Her interests lie in carbonate stratigraphy and diagenesis, particularly the ability to predict the spatial distribution of different geobodies by integrating geological, geochemical, and geophysical data and visualizing this through 3-D geocellular models. Contact: [jean.hsieh@sedimentarygeology.com](mailto:jean.hsieh@sedimentarygeology.com)