Salt Tectonics for geophysicists

Discipline: **Salt Tectonics, Structural Geology, Petroleum Systems**

Length: **2 days**

Instructor

Mark G. Rowan, PhD

Mark received a B.S. in biology from the California Institute of Technology in 1976, an M.S. in geology from the University of California, Berkeley, in 1982, and a Ph.D. in structural geology from the University of Colorado at Boulder in 1991. He worked for Sohio Petroleum Co. (1982 to 1985), Geo-Logic Systems (1985-1989), and Alastair Beach Associates in Glasgow, Scotland (1989-1992). He then returned to the University of Colorado as a Research Assistant Professor before founding his own company in 1998, where he consults and teaches for the petroleum industry worldwide and conducts research sponsored by industry.
Although Mark's background includes many types of tectonic environments, his primary research and consulting interests are focused on the styles and kinematics of salt tectonics, the processes of salt-sediment interaction, the architecture and evolution of passive margins, and the applications to petroleum exploration. He is the author or coauthor of over 80 papers and 170 abstracts, is the regular instructor for AAPG's Salt Tectonics school, and has been an AAPG Distinguished Lecturer and an AAPG International Distinguished Instructor.
has authored a number of patents. She is fluent in English, German, and Spanish, and proficient in French and Italian.

COURSE DESCRIPTION

This is a geological course on salt tectonics, but aimed at interpreting and processing geophysicists. The goal is to help them understand the geology underlying their seismic data and the way that their clients use the data. Lecture material is supplemented with seismic-based exercises.

LEARNING OUTCOMES

After this course participants will be able to:
- assess the influence of layered evaporites on velocity models and seismic images
- describe the mechanics of salt flow
- understand how differential loading, extension, and contraction drive salt flow
- evaluate diapir rise and minibasin subsidence
- relate poor images in diapir-flank settings to geologic models
- evaluate the role of complex allochthonous salt on imaging and interpretation
- interpret seismic data while avoiding associated pitfalls due to complex salt bodies

COURSE CONTENT

1. Layered evaporite sequences on seismic data

2. Fundamentals of salt tectonics
   2.1. Mechanics
   2.2. Gravitational failure
   2.3. Definitions

3. Extensional salt tectonics
   3.1. Thin-skinned extension
   3.2. Diapir initiation and reactivation

4. Contractional salt tectonics
   4.1. Thin-skinned contraction
   4.2. Diapir initiation and reactivation

5. Strike-slip salt tectonics

6. Vertical salt tectonics
   6.1. Salt-evacuation structures and minibasins
   6.2. Passive diapirism
   6.3. Near-diapir deformation
   6.4. Dissolution

7. Allochthonous salt tectonics
   7.1. Initiation and advance
   7.2. Styles and evolution of salt sheets and canopies