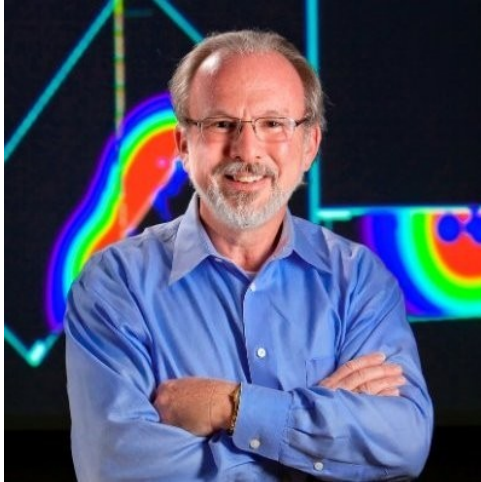


Beachballs and the Doors to Perception

Dr. Peter M. Duncan
MicroSeismic, Inc.

Thursday, September 3, 2026, 9 a.m. Central Time



Peter M. Duncan, Ph.D., is the Founder and CEO of MicroSeismic, Inc., a Houston-based passive seismic monitoring service company. He will speak on Thursday, September 3, at 9:00 a.m. Central Time. The topic is “Beachballs and the Doors to Perception.”

Abstract

Microseismic events created by frac'ing are the result of fault motion in response to the tectonic stresses that are set free when the frac fluid pressure overcomes the frictional forces holding the faults in place. The geometry of the fault motion gives rise to an amplitude and phase radiation pattern for the microseismic signal. In early monitoring projects, mostly acquired with limited downhole arrays, the radiation pattern often was ignored in favor of estimating only the hypocenters of the events. With the increasing use of surface arrays, it was realized that estimating the focal mechanism of the event from the observed radiation pattern was not only necessary in order to get the correct location but also opened the door to a more complete characterization of the frac. We recognized that microseismic monitoring is a real-time, in situ observation of exactly how the rocks are moving at the point of failure and how that motion changes in time and space as the frac proceeds. It is like taking the rock physics lab to the field.

Biography

Peter M. Duncan, Ph.D., is the Founder and CEO of MicroSeismic, Inc., a Houston-based passive seismic monitoring service company. He holds a Ph.D. in Geophysics from the University of Toronto. His early career as an

exploration geophysicist was with Shell Canada and then Digicon Geophysical, first in Calgary and then in Houston. In 1992, he was one of three founders of 3DX Technologies Inc., a publicly traded independent oil and gas exploration company.

- 2003-04 President of the Society of Exploration Geophysicists (SEG).
- 2019-20 President of the Geophysical Society of Houston (GSH).
- 2008 SEG/AAPG Distinguished Lecturer speaking on the subject of Passive Seismic at 45 venues around the world.
- 2010- Received the Enterprise Champion Award from the Houston Business Journal.
- 2011- World Oil Innovative Thinker Award.
- 2013 - EY National Energy Entrepreneur of the Year.
- 2014 - Received the Virgil Kauffman Gold Medal from SEG.
- 2024 Cecil Green Enterprise Award, Society of Exploration Geophysicists (SEG).

He is an Honorary Member:

- SEG
- Geophysical Society of Houston (GSH)
- Canadian Society of Exploration Geophysicists (CSEG)
- Geophysical Society of Houston (GSH)
- European Association of Geoscientists and Engineers (EAGE)