

Rock Physics Observations of Organic Maturity, Elastic Modulus, and Flow in Organic-Rich Rocks

Manika Prasad¹

¹*Colorado School of Mines, Denver, CO, OCLASSH Consortium*

Abstract

Organic-rich rocks (ORR) are common source rocks for most clastic reservoirs. More recently, they have gained importance as reservoirs. However, the effects of kerogen maturation on hydrocarbon saturation and transport are poorly understood. Similarly, although seismic velocities and elastic moduli increase with increasing maturity, the reason for this increase also remains poorly understood. In this talk, I will review existing correlations for ORR, for example between seismic properties and maturity, and discuss their implications for seismic imaging, hydraulic fracturing, and flow characteristics. Our ongoing study focuses on better understanding maturity-related variations in ORR by using various analysis techniques. These results are critical to help us understand how the various components of ORR evolve with burial and maturation and how hydrocarbons are stored and transported to sustain large storage even at high overburden stresses.