

## **Gee Whiz Geophysics...But What About the Log Data? Normalizing, Editing and Supplementing Log, Core and Production Data from 1935 to the Present**

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Geophysicists have been trying to squeeze as much useable information as possible from seismic data long before the discovery of bright spots. Today they display this information with 3D visualization software and 3D seismic is touted as the answer to all things...*but what about the log data?* Most log data (even ancient log data) have 10-25 times better vertical resolution than today's seismic data however, many geoscientists treat log data much like it was treated in 1935. They obtain copies of the logs, display them in cross sections, correlate them, and map them. The use of mixed-vintage, incomplete, and/or poor quality log data however, can lead to serious problems in interpretation. Without accurate, normalized, high-resolution log data for every well in a study area, correlations, seismic ties and maps may be incorrect. As a result, 3D seismic interpretations based on these data may turn out to be amazingly colorful but inaccurate representations of what is actually happening in the subsurface. Today the oil and gas industry is challenged with evaluating declining production in aging fields which could involve hundreds of wells with log data recorded from 1935 to last week. New plays often involve laminated, poor-quality, low permeability, fractured, or unconventional reservoirs. Using resistivity and SP inversion processing and neural network modeling run on their PC, geologists and geophysicists can generate complete suites of accurate, high-resolution, edited, log, core, and production data for every well in a study area. Examples from the Appalachians, Mid-Continent, California and Rocky Mountains.