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Teresa Pérez-Muñoz* (teresap@imp.mx), Eje Central Lázaro Cárdenas 152, Gustavo A. Madero., 07730 México, DF, Mexico, **Eliseo Hernandez-Martinez** (elijazfan@yahoo.com), Eje Central Lázaro Cárdenas 152, Gustavo A. Madero, 07730 México, DF, Mexico, and **Jorge X. Velasco-Hernández** (velascoj@imp.mx), Eje Central Lázaro Cárdenas 152, Gustavo A. Madero, 07730 México, DF, Mexico. *Study on Identification of Oil, Gas and Water Zones in Geological Logging: A Wavelet Coherence Approach.*

To reduce the operating costs in new wells and of working over existing wells, it is imperative to know the location of oil, gas and water horizons in the wellbore. For many years the predictions of oil, gas or water in the wells by geophysical logs have differed considerably from the results obtained when the zones were tested. Nowadays, due to the great advances in logging techniques supported with additional tools such as seismic, the prediction about the structure and transport routes have been improved. However, these techniques are costly and depend on the interpreter's experience. In this work, we analyze different well-logs by mean of wavelet coherence analysis to identify oil, gas and water zones. The proposed methodology is based on the normalization of the well-logs allowing quantify the fluctuations of the signals at the same scales. The presence of gas, oil or water zones is identified when the wavelet coherence shows significative constrasts in the trends of two different logs of the same well. Results indicate that the interpretation of the coherence analysis is a valuable technique to identify common features in well logs, such as, spatial distributions of the different types of sand and posible oil transport routes. All results were corroborated by geologists. (Received May 10, 2013)