Analysis of 3-D Ground Penetrating Radar (GPR) Data for the Study of Rudist Mounds in a Shallow Water Environment, Lake Spillway Georgetown, Central Texas

HEONHAK LIM and GWANG H. LEE

Department of Energy Resources Engineering Pukyong National University, Busan, 608-737, Korea

We analyzed 3-D ground penetrating radar (GPR) data from an Early Cretaceous shallow carbonate environment in Lake Spillway Georgetown, central Texas to characterize the rudist mounds that form an important hydrocarbon reservoir in the area. The GPR survey covers a volume with a surface area of 82 × 93 m and depth of about 17 m. The data set consists of 83 inlines and 94 crosslines with a line spacing of 1 m. Data processing includes velocity analysis, based on nine CDP gathers, and Kirchhoff migration. The crosslines were interpolated to 0.5 m, increasing the number of crosslines to 187. Cores from the GPR data area are dominated by carbonates with a wide range of porosity. We identified six rudist mounds, characterized by strong and slightly irregular top reflections and low coherency. The rudist mounds are 5 – 20 m wide and 2 – 5 m high and appear to have retreated landward, probably due to relative rise of sea level.Displayed equations e.g. "Eq. (1)" can be centered,