Revealing the Subsurface of the Western Desert – Seismic Solutions and Technologies Rewards Egypt with a New Oil Discovery

Ehab Eid[1] (Speaker)

[1]Exploration Dept., Tharwa Petroleum Company, Cairo, Egypt

ABSTRACT

The Western desert of Egypt is characterized by very complex subsurface. This usually forms a barrier to the oil and gas exploration especially that we cannot easily extract information from the seismic data. In the first few meters below the surface, the presence of hard layers like limestone and Dolomite. These are areas where limestone is dissolved and is usually filled with other rock types, the sudden change of the lithology causes scattering of the seismic data and loss of energy. The Abu Roash layers below the near surface are usually characterized by high acoustic impedance and sharp velocity variations, they trap the seismic energy inside them and do not allow most of the energy to penetrate downwards.

In this paper we will show a successful study from the Western Desert where the use of new seismic data processing technologies and the integration of good seismic acquisition with the geologic and geophysical knowledge helped to clearly image the layers in the deep part of the area and led to a successful oil discovery. We utilized the non-uniform coherent noise suppression technique to be able to model the linear and coherent noise of the data accurately and remove them. The data regularization played an important role to overcome the acquisition irregularities and produced gathers that are much better for velocity analysis and depth imaging. The drilled well confirmed the interpretation from the seismic data and has hit its target accurately which giving Egypt a new oil discoveries in the Western Desert.

Biography

Dr. Ehab Eid has completed his Ph.D. in Geophysics from Ain Shams University, Egypt. His career began in 1997 as a Geophysicist at Schlumberger international company. He was nominated from Schlumberger to work with ExxonMobil Houston headquarters as a technical advisor for almost one year in 2002. He joined several positions until he reached the post of seismic projects supervisor in 2005 until the end of 2006. He moved in 2006 to Croatian Oil Company INA Nafta as Geophysical Operations Manager until mid of 2008. He moved to Tharwa Petroleum Company in 2008 till now as Geology General Manager.