

# **Comparison between Formation Pressure Modeling Using Well-Logging Data and Seismic Velocity Data in Bonan Sag**

**Xuwei Dang<sup>1</sup> and Sheng He<sup>1</sup>**

<sup>1</sup>China University of Geosciences

## **Abstract**

Zhanhua depression has abundant hydrocarbon resources, and Bonan sag is a typical overpressured sag in it. The well-logging data, in conjunction with the Eaton formula pressure prediction model, have been used with considerable success in Bonan sag. During exploration, it can be used to predict pressure vertical and lateral distribution. The main objective of this project is to compare the pore pressure 3D modeling using well-logging data with the 3D modeling calculated by VSP velocity data. To predict the formation pressure from well-logging data, three different methods have been applied, including the Eaton, the Bowers and the compressibility methods. The results indicate that Eaton method with Eaton's exponent of about 3.0 has the best correlation with the measured pressure data. In undrilled locations, however, velocities derived from surface seismic data are the only data available to provide indirect pressure measurements. Combination of the seismic velocity data and Fillippone formula can also predict formation pressure. By comparison, of the two-formation pressure modeling using well-logging data and seismic velocity data, validate the reliability of 3D modeling using well-logging data and complete the model updating.