Abstract

This paper describes a seismic object detection method using supervised neural networks to combine seismic attributes and transform them into a single 'object probability' attribute. Unlike other widely used methods, the approach incorporates interpreter's knowledge into the well-known process of combination of multiple attributes. In fact, the interpreter decides the anomaly to be addressed and picks examples of anomalies for the neural networks. The approach completely relies on the interpreter to select the input attributes. However, the limitation that this approach has over other approaches is that it does not incorporate machine intelligence to validate attribute selection. Thus, the present study attempts to overcome this limitation and uses neural networks in the process. The integration of a neural network has played a key role in determining the type and number of attributes used in the prediction and, thus, gives the approach more reliability and confidence. Furthermore, with the help of the neural network, an appropriate group of attributes could be successfully determined and they could be combined into one object probability attribute that made it possible to clearly localize and delineate three bright spots associated with shallow gas in the Upper Pliocene-Pleistocene off the Dutch coast