



Acoustic Full Waveforms as a Bridge between Seismic Data and Laboratory Results in Petrophysical Interpretation

Kamila WAWRZYNIAK-GUZ

AGH University of Science and Technology, Faculty of Geology,
Geophysics and Environmental Protection, Department of Geophysics,
Kraków, Poland; e-mail: wawrzyni@agh.edu.pl

A b s t r a c t

Mutual relationships between geological and geophysical data obtained by using methods of different scale are presented for the Miocene sandy-shaly thin-bedded formation and for the Zechstein carbonate formation. The common basis of laboratory results, well logging and seismic data was a recognition of elastic and reservoir properties of rocks. The common basis of laboratory results, well logging and seismic data were elastic and reservoir properties of rocks. Seismic attributes calculated from acoustic full waveforms were a link between the considered data. Seismic attributes strongly depend on small changes observed in rock formation related to lithology variations, facies changes, structural events and petrophysical properties variability. The observed trends and relationships of high correlation coefficients in the analysed data proved the assumption made at the beginning of research that common physical basis is a platform for data scaling. Proper scaling enables expanding the relationships determined from laboratory and well logging of petrophysical parameters to a seismic scale.

Key words: seismic attributes, acoustic full waveforms, elastic properties of rocks, upscaling.