

Seismic mapping of Pahang Quaternary sediments, Pekan, Pahang

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For the past 70 years, reflection seismic is the most common geophysical technique applied for underground structure imaging in petroleum exploration as this technique could depict the real underground geological structures. With some modifications, the technique could be applied for shallow underground structures studies such as the Quaternary sediment study around the Pekan area, Pahang. Shallow seismic reflection exploration begins with the data acquisition technique. Optimum window technique is the most common technique being applied to determine the most suitable field data acquisition parameters. Seismic wave is generated by the hammer source or dynamite explosion. Reflection seismic signals are detected by geophone array with natural frequency 14 Hz and 100 Hz and recorded by 24 channels ABEM Terraloc seismograph. With the raw field data in hand, the first thing to do is editing and increase the signal to noise ratio. After that, the raw field data will be sorted and gathered following the common depth point (CDP) sequence. This CDP gathered sequence data will go through some processes like static correction, velocity analysis, stacking, deconvolution and migration to produce the seismic reflection section. The section afterwards has to be fitted with borehole data and combined with other data to conclude the overall geological interpretation. In general, the Holocene sediment is marine and covered the top 35 m under the surface but this information could not show in the seismic reflection section. The high amplitude, frequency and parallel reflections are recorded from depths 35 m to 200 m and represented the Pleistocene fluvial deposit. Parts of the parallel reflections were displaced by normal high angle listric fault. Granite bedrock is overlaid by Pleistocene sediments.
