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Abstract

P-S converted seismic method is aimed at analysis of the S-wave signals converted from the incident P-wave on reflection. S-wave data could provide the different elastic properties of subsurface structure, and it has better performance on seismic image at the fluid-saturated region. Obtaining the P-wave and S-wave information could let us get more deeper understanding and accurate interpretation on the subsurface structure. Because P-wave is sensitive to the fluid saturation of the rocks, it is difficult to obtain the clear profile at the saturated area; on the other hand, S-wave converted data could delineate the oil- or gas-saturated reservoirs and the structure beneath the fluid-saturated layer. The variation of V_P/V_S value could be a reliable indicator of discriminating the lithologic changes and monitoring reservoirs; Furthermore, analyzing the anisotropy could describe the properties of the fractures such as orientation. Although S-wave information could also be obtained by the conventional S-S seismic survey, the time-consuming and expensive fieldworks are the disadvantages of the survey. On the contrary, the P-S converted seismic survey is an efficient and broad applications method to gain the P-wave and S-wave information simultaneously.

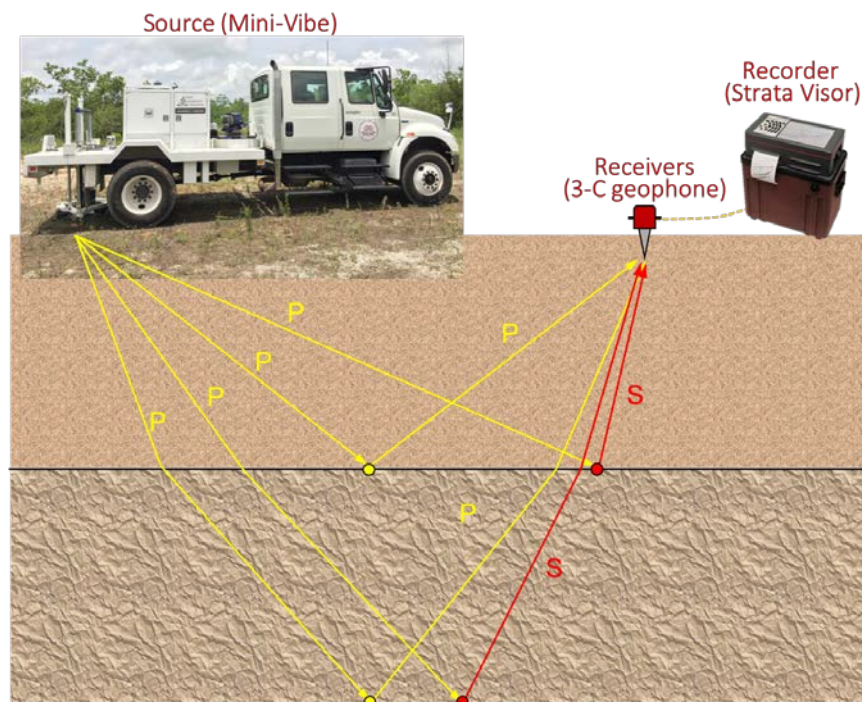


Figure: Scheme of the seismic reflection survey. The incident P-wave (yellow arrow line) generated from the seismic source (Mini-Vibe), reflected on the interface between two mediums having different seismic wave velocity, and partial energy is converted to S-wave. The receivers (3-C geophone) record the reflected P-wave from reflection point (yellow point) and the converted S-wave from conversion point (red point). All the data from each receiver will be stored in the recorder (Strata Visor).