REFRACTION PROFILING ACROSS THE SHORELINE: A MODIFIED SEISMIC TECHNIQUE

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A modified shallow refraction seismic technique that permits profiling across the shoreline using a hybrid seismic equipment combination is introduced. Shallow refraction seismics on land often avoids shooting too close to the shoreline. High resolution marine profiling on the otherhand is limited in its ability to operate close to the shore because of shallow water depths. The judicious combination of both land and marine seismic equipment allows direct mapping across this neglected yet economically important land-sea boundary. Geophones and recording equipment from a regular 12-channel signal enhancement seismograph are laid out on shore perpendicular to the shoreline with the usual spacings for a shallow refraction survey. The seismic energy source is replaced instead by an electrically triggered multi-electrode sparker in the sea water moored a pre-selected distance from the first geophone planted on land. Initial tests in the Batu Ferringhi Beach, Penang indicate strong low frequency refraction arrivals from shallow sub-bottom penetration. The hybrid seismic technique is being developed for shoreline Quaternary mapping and littoral horizon identification.

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