

PETROLEUM EXPLORATION IN SUBANDEAN BASINS
“Knowledge Integration - The key to success”

advances in acquiring real-time data using wireless technology

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Land seismic acquisition has traditionally relied on the use of cables to power the acquisition instruments and to transport the seismic data to a central recorder. However, the logistical issues relating to the use of cables to connect acquisition instruments is a serious handicap. The problems of deploying and maintaining cabled networks, relocating cables in order to move the spread, and repairing cables have acted as constraints on the growth in size and scope of land seismic acquisition projects worldwide.

In the recent past, two approaches are being adapted in order to overcome these barriers. In the first approach, instruments are being deployed as autonomous “blind” nodes whose data has to be collected and transcribed in order to make it ready for processing. In a new approach, instruments are being deployed with the capability to wirelessly transport the seismic data to a central location in real time. Whereas the nodal approach has been successful at eliminating the use of cables, it introduces the need to visit the instruments physically to collect (harvest) the data from the instruments and to prepare the downloaded data (transcription) for input into industry standard formats. The nodal approach precludes any chance of viewing the seismic data immediately.

This presentation reviews the initial results of field deployments using a system with real-time wireless data collection, usable in both remote and urban environments. A review of some of the system capabilities and limitations in terms of network throughputs, radio interference issues in urban environments, and the use of different sources will be given. Based on its initial deployments, the solution is entirely capable of being scaled up to support the large channel counts demanded in land seismic operations.