

ChukchiSPAN

PROGRAM OVERVIEW

The post-Devonian extensional crustal structure that relates to the rigid rotation of arctic Alaska and Chukotcha from the MacKenzie region, and forms the Beaufort-Canada basin, is widely understood. However, the basement geology of the Chukchi basin is not. It is, in fact, poorly imaged by prior, insufficient seismic surveys. Stratigraphy of the Chukchi Shelf is essentially that of the North Slope of Alaska. Early drilling in the late 1980s confirmed the presence of major sequences and formations traditionally identified and mapped on the North Slope. Integrating this information with ChukchiSPAN™ using newly acquired seismic data, imaged by ION's GX Technology (GXT) group, detailed "prospect level" seismic data and knowledge of contiguous petroleum systems greatly increases the probability of success for E&P companies with interests on the Chukchi Shelf.



The Chukchi has estimated recoverable reserves of more than 29 billion boe (MMS, 2006). Due to its remote location and hostile environment, the area experienced only one round of leasing and drilling activity, more than two decades ago. In today's market and with advances in new technology, there is renewed interest in the area. In 2006, ION acquired over 3,000 km of 2D seismic data in the U.S. zone of the Chukchi Sea. The program was designed for deep imaging to the base of the crust using 9,000 m cables, 18 sec recording and depth processing (PSDM) to 40 km. The data acquisition was in open water, well outside the environmentally sensitive coastal zones. The unique acquisition positioning provided a distribution of 2D seismic lines across known structural and stratigraphic provinces and new plays. ION's ChukchiSPAN is the only dataset of its kind available for this region.

Interpretation of the acquired and processed data indicates the following:

- The Chukchi Shelf is underlain by the continental crust with suggestion of an attenuated crust
- The North Chukchi Basin contains up to 12 km of prospective Cretaceous and Tertiary sediments
- Some underlying pre-Mississippian sediments could also be prospective for hydrocarbons
- The data is consistent with the theory of rotation of arctic Alaska from the MacKenzie region

About BasinSPANS™

ION's BasinSPANS (SPANS) are geologically inspired, basin-scale seismic data programs acquired and depth-imaged by ION's unmatched GX Technology experts using the most advanced geological and geophysical processing tools available. They provide upstream companies with the ability to evaluate the geologic evolution, deep basin architecture and depositional and structural histories of entire petroleum systems in a region.

Unlike conventional multi-client seismic surveys, BasinSPANS are custom designed in collaboration with ION's GeoVentures group, regional experts and the O&G companies. Once the program objectives are agreed upon, ION serves as project manager and applies the best survey design, acquisition and processing technologies with a proprietary mindset that adds value and achieves exceptional results. Such in-depth data and the associated interpretation tools greatly assists asset managers with portfolio management and provides significant risk mitigation as they develop exploration and appraisal programs with greater confidence.

ION owns one of the most up-to-date seismic data libraries in the industry, consisting of 2D, 3D and full-wave (multicomponent) data from around the world.

PROGRAM OBJECTIVES

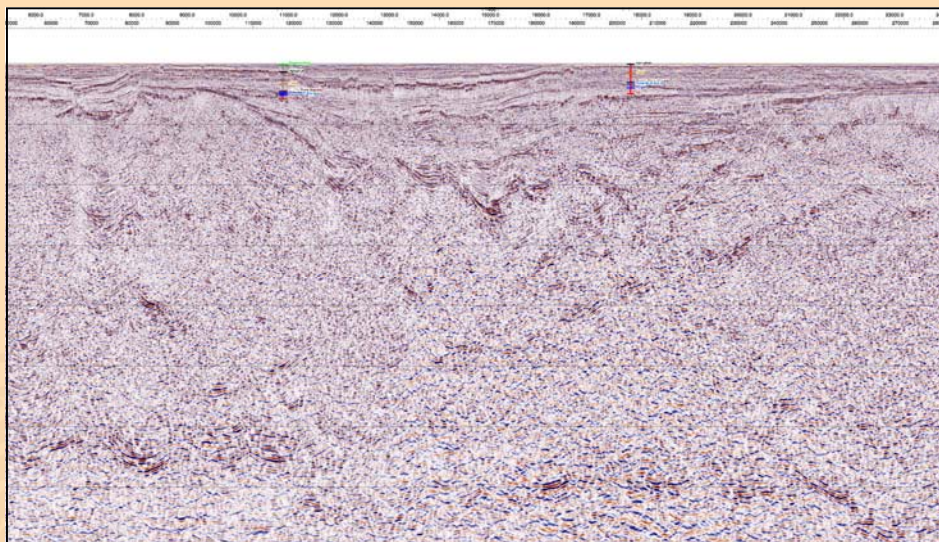
- To image down to the base of the crust
- To enable regional mapping of the MOHO discontinuity and the top of the crystalline basement
- To identify the major stratigraphic sequences extending out from the petroliferous North Slope
- To interpret the pre-Mississippian rifting and compressional history of the area

KEY COMPONENTS

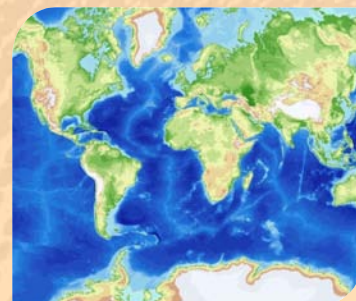
- Program design and layout of over 3,000 km of new seismic driven by known geology and client input
- Integrated geologic and geophysical interpretation
- Provides a consistent seismic regional framework that ties in existing seismic lines
- Improved understanding of key geologic features and places them in a basin-wide context
- Applies technical specifications of acquisition, data processing and depth imaging of the seismic data

DELIVERABLES, WITH FULL PARTICIPATION, INCLUDE

- Raw navigation merged shot gathers (SEG-Y)
- Final Kirchhoff PSDM and PSTM stacks (SEG-Y)
- Final PSDM depth-interval velocity model (SEG-Y)
- Final PSTM velocity model (SEG-Y)
- Gravity and magnetics data
- Structural and stratigraphic interpretations (faults and horizons)
- Final processing and acquisition reports



Sample data for ChukchiSPAN



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