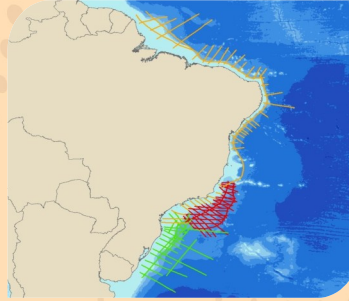


# BrasilSPAN

## PROGRAM OVERVIEW

ION's BrasilSPAN™ surveys consist of three programs covering the entire offshore of Brazil from Foz do Amazonas to Pelotas. The datasets are designed to improve our understanding of the petroleum systems in the various geological provinces of Brazil and to provide a framework for new hydrocarbon potential overlooked or not imaged previously.



BrasilSPAN datasets include:

- BrasilSPAN Pre-Salt Study – 14,000 km of data covering Santos, Campos and Espirito Santo from 20 m to beyond 3,000 m water depths
- BrasilSPAN Pelotas – 10,600 km of data in Pelotas and southern Santos
- Greater BrasilSPAN – More than 25,000 km of data covering equatorial Atlantic and Atlantic margin from Foz do Amazonas to Espirito Santo. New infill data is planned along the Equatorial Margin.

All three BrasilSPAN programs tie into each other to provide the industry's first regional pre-stack depth framework of all of the major basins in the country. BrasilSPAN datasets have been designed to tie with ArgentineSPAN™ in the south and to ION's West AfricaSPAN™ datasets across the Atlantic Ocean. This is the first long-offset (10 km), long recording (18 sec), deeply imaged (up to 40 km using a powerful specially-designed source) dataset to be acquired in Brazil.

## PROGRAM OBJECTIVES

- To provide a regional, depth-imaged framework to promote better understanding of the area's tectonic architecture and basement structure
- To develop plays based on proven and conceptual new petroleum systems – provide comprehensive interpretation that includes maps of the area's active petroleum systems, the likely limits of existing plays, and the location of new plays
- To build paleo-tectonic "fits" with corresponding regions in Africa through ION's unique AfricaSPAN datasets covering Angola to Nigeria
- To develop a comprehensive deep-basin framework and a model for the hydrocarbon potential of rifted continental margins across Brazil's deepwater provinces, and use this relationship to build better outboard models beyond Tupi and Jupiter discoveries
- To promote better understanding of the development of the Amazon Fan and the potential for new petroleum systems in Brazil's northern basins through conjugate ties to Africa's successful Mahogany play in Ghana

## 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.

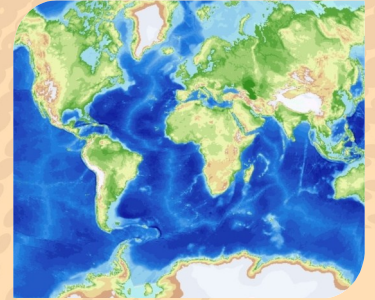
ION owns one of the most up-to-date seismic data libraries in the industry, consisting of 2D, 3D and full-wave (multicomponent) data from around the world.

## KEY COMPONENTS

- 10 km offsets, 18 sec record length and a special source designed for optimal, deep imaging
- Paleo-reconstruction of Brazil's Equatorial margin basins through ties into West Africa's latest Mahogany discoveries in Ghana
- Significant deep basin architecture revealed in BrasilSPAN data – new information on the rifting architecture, pre-rift sequences and paleo-movement of salt in Santos and Campos basins
- Deep Tow acquisition technology and RTM imaging by ION's GX Technology group is providing tremendous insight into the pre-rift and crustal thickness in the Santos basin.

## DELIVERABLES, WITH FULL PARTICIPATION, INCLUDE

- PreSTM stacks, gathers, and velocity model
- PreSDM stacks and velocity model
- Structural and stratigraphic interpretation
- Acquisition, processing and interpretation reports
- Navigation-merged shot records
- Gravity and magnetic data



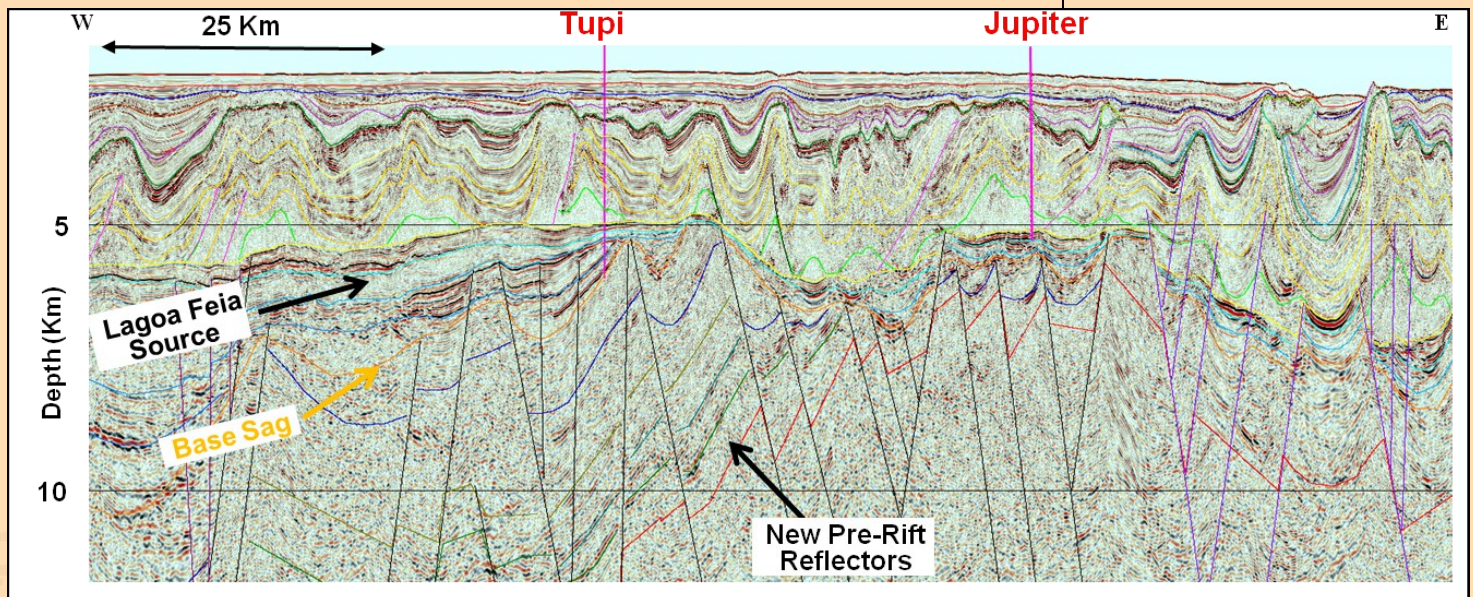
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PSDM Image of a line through Santos showing the well-imaged pre-rift sequence below Tupi