Orca® | For Towed Streamer Operations

Orca
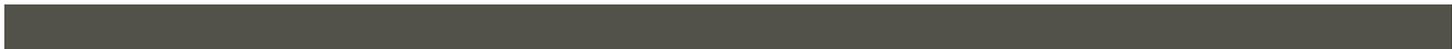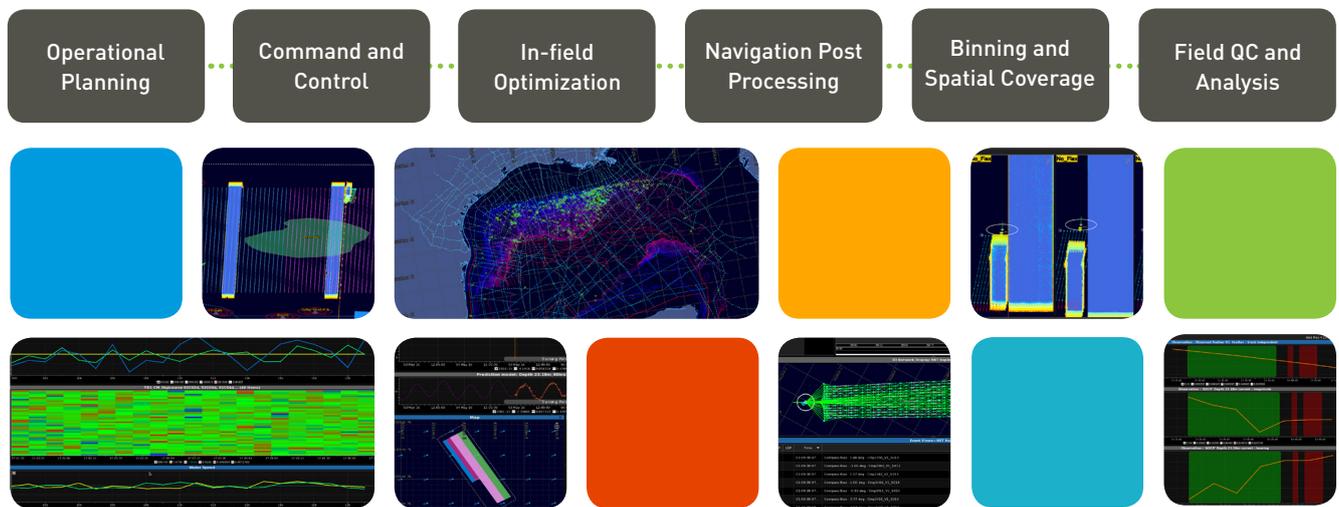
→ Established as the industry standard for towed-streamer command and control

→ Centralization and automation of data management, processing and reporting

→ Optimization of surveys through scenario modeling

→ Continually evolving technology with close client collaboration

→ Dedicated support team available 24/7

→ World-wide track record with oil companies and seismic service providers

Drawing on over 30 years in-field experience and installed on a significant majority of vessels worldwide, Orca is the industry leading integrated system that centralizes and automates the command and control of all on-board and in-water systems. Orca delivers efficiency improvements in today's acquisition environment, from 2D and 3D to complex, multi-vessel programs including 4D and WATS.

KEY BENEFITS

→ Industry leader with unrivaled track record

→ Greater operational efficiency

→ Reduced survey cost and operational risk

→ Simplified operations

→ Automated near real-time navigation processing

→ Proven and timely delivery of bespoke solutions

→ Automation ensures accurate and consistent deliverables

→ Reliability from robust architecture & fault tolerant design

→ Interfacing and integration expertise

→ Easy to plan and adapt to dynamic conditions

→ Advanced scenario modeling

Orca at a glance:

| Operational Planning | Command and Control | In-field Optimization | Navigation Post Processing | Binning and Spatial Coverage | Field QC and Analysis |

→ **Operational Planning**

Orca's planning functionality combines obstacle information, ocean current models, coverage and repeatability into operational plans to derive the most efficient acquisition plan. It produces clear, concise work schedules for distribution to multiple vessels and third parties within the survey area.

→ **Command & Control**

At the heart of the instrument room, Orca's reliable interfacing provides control and synchronization of the critical systems in the instrument room whatever acquisition is being undertaken. Real-time diagnostics, automated QC, robust logging and reporting give the operators, and clients, the confidence that the highest quality production is being achieved.

→ **In-field Optimization**

Orca provides intelligent modeling of ocean currents, through the use of tidal data, third party and proprietary, internally calculated models, providing decision makers with enhanced feather predictions, modeled coverage and line prioritization guidance. This ensures that the most beneficial lines can be acquired at the optimal time, thereby increasing efficiency and quality for the survey being undertaken.

→ **Navigation Processing**

Orca's navigation processing is automatically carried out whilst online, with fully processed deliverables available only minutes after end of line. The Near Real Time (NRT) engine automatically processes the navigation data, providing consistent results with minimal operator's input. If required, the processing system allows the user to focus on automatically identified key problem areas and recalculate final positions quickly and efficiently. Full re-processing is possible, but typically not necessary.

→ **Binning & Spatial Coverage**

Orca's coverage functionality is trusted by E&P and seismic companies to provide binning of coverage, attributes and repeatability deliverables. Real-time displays ensure that maximum coverage and repeatability can be achieved online. Offline coverage plots and detailed attribute reports are produced, allowing optimal infill decisions to be made.

→ **Field QC & Analysis**

Orca's powerful field QC and analysis functionality provides comprehensive but clear reporting of data quality in real-time and offline. Real-time the focus is on quality assurance (QA) and automatically identifying problem areas, rather than relying upon manual review. Orca's central database architecture means disparate survey data sources are logged, from which an extensive array of data sources can be queried and QC'd thus allowing meaningful reports to be produced.

	Surface Geometry	Subsurface Illumination	Operational Planning	Command & Control	In-field Optimization	Navigation Post Processing	Binning & Spatial Coverage	Field QC & Analysis	Situational Awareness (incl. weather)	Ice Management
Towed Streamer Seismic	MESA	MESA	Orca	Orca	Orca	Orca	Orca	Orca	Marlin	Marlin
Seabed Seismic	MESA	MESA	Gator	Gator	Gator	Gator	Gator	Gator	Marlin	Marlin
Onshore Seismic	MESA	MESA					MESA	MESA		
Offshore Operations*			Marlin		Marlin				Marlin	Marlin

Offshore Operations including: logistics; Subsea, Umbilicals, Risers and Flowlines (SURF); and construction projects

ION has been delivering innovative solutions to the energy industry for over 50 years, and is the leading provider of real-time, multi-vessel positioning and control systems. For further information contact csl-sales@iongeo.com.

About ION

ION is a technology leader with a strong history of innovation. Leveraging innovative technologies, ION creates value through data capture, analysis and optimization to enhance companies' critical decision-making abilities and returns. Our offerings are focused on improving E&P decision-making, enhancing reservoir management and optimizing offshore operations.