IMPROVING ACQUISITION EFFICIENCIES

With more than 10 years in the field and 50+ installations, Orca® is the industry-leading system that centralizes and automates command and control of all on-board and in-water technology for any 2D, 3D or 4D towed streamer acquisition configuration. Orca provides survey-wide visibility, control, and prediction capabilities to:

→ Simplify the configuration and management of acquisition
→ Speed up the turnaround time on acquisition, QC and reporting
→ Reduce the costs of acquisition
→ Minimize HSE risk

Orca improves the effectiveness and efficiency of navigators by:

→ Actively driving the vessel to achieve optimal spread parameters
→ Unique ability to automatically process navigation data in near real-time (NRT)
→ Providing QC tools that help validate seismic data quality
→ Providing final navigation data, coverage and other reports in near real-time

Orca also helps minimize the costs of acquisition by:

→ Estimating the time it takes to complete each line and turn to optimize the 24 hour plan
→ Providing a visual analysis of coverage in order to ensure minimal overlap
→ Accounting for weather and currents to ensure repeatability the first time

Additionally, Orca significantly reduces the risk associated with operations, equipment failure, and HSE by:

→ Reducing human intervention and interpretation
→ Advanced, automated alarm systems that incorporate major contributing risk factors, and
→ Proactively alarming when necessary

ENABLING SAFE AND EFFICIENT ACQUISITION

Marine towed streamer surveys continue to increase in their complexity, particularly with the advent of 4D and wide-azimuth seismic data acquisition. While these surveys improve data quality and subsurface understanding, they require additional planning, analysis, personnel, and equipment in order to complete safely and efficiently. Orca software enables efficient and effective planning, analysis, and infield execution of these seismic projects across any number of vessels.
**PLANNING**

To optimally acquire data, it’s important to make the correct sail line choices throughout the survey. The Orca Planner and Optimizer modules improve one’s ability to formulate the best plan by providing advanced capabilities that account for:

- Feather prediction and matching
- Streamer shape and coverage
- Obstructions
- Line prioritization
- Optimal turns

These advanced analysis tools allow one to evaluate and determine the most effective and efficient pre-plot plan and timing in order to meet acquisition objectives. In addition, choices based on actual and forecasted data in real-time, facilitate optimal placement of the vessel and equipment spread to maximize data quality, productivity, and repeatability in the case of 4D.

**STREAMER AND GUN CONTROL**

Orca integrates systems and controls streamer positioning and source timing. Positions of the guns and streamers are output every second so that navigators have a real-time visual understanding of where the equipment and vessel are relative to the pre-plot line. In addition, automated vessel steering by Orca allows for real-time adjustments to improve streamer and gun positioning according to plan. This automation allows the navigator to focus on seismic coverage, QC, and optimizing the next line versus managing the plan reactively.

**OPTIMISER**

Acquiring efficient surveys with repeatable source and receiver positioning can be difficult. The Orca Optimiser improves the ability to provide the same acquisition parameters as previous surveys by taking into account current information and the effect it will have on the streamers and coverage, steering straight line preplots, using a multi-swath approach, and more. This information allows navigators to determine the best lines to shoot and estimate the coverage to be obtained in advance, making the operational decisions during both planning and in near real-time more efficient. As a result, the need for infilling and the number of lines acquired is minimized, saving the E&P client both time and money.

The Orca Optimizer allows you to model currents in the short range and their affect on feathering in order to make the most effective shooting decisions.
IRIS AND NEAR REAL-TIME PROCESSING (NRT)

Historically, the navigator or processor’s job was to look at all of the different positioning data for a line, cut out any anomalous spikes and smooth the data in order to produce the most accurate gun and receiver positioning data for seismic processing and imaging. This manual process not only took hours, but might also deliver inconsistent results from navigator to navigator. NRT automates this process, thereby mitigating the need for manual intervention, saving hours of time for each line. In addition, because NRT is 10 minutes behind real-time, it has future data, which is leveraged to compare and more accurately refine anomalous data to the correct positioning. This allows NRT to resolve the majority of positioning issues automatically. However, for the small number of issues that NRT is unable to resolve, Iris, provides the tools to help you identify the problem, thereby dramatically decreasing the time spent resolving positioning issues.

Resolve positioning issues quickly and efficiently using Iris’ analysis tools.

COVERAGE (Reflex)

Without adequate seismic acquisition coverage, a seismic survey is not guaranteed to provide a high quality image of the subsurface. With Orca Coverage, seismic crews can determine the quality of coverage in real-time, and in the case of 4D, real-time repeatability can be viewed. By understanding the quality of coverage in real-time and more holistically, this helps minimize the need for infill, saving the client both time and money and improving their overall satisfaction.

DELIVERABLES

Orca automatically generates multiple deliverables for the navigator and client to improve the efficiencies in seismic acquisition workflows including:

- Gun and receiver positioning
- P1/11 or P1/90 data 10 minutes after the end of line
- Automated end of line tasks including final coverage and end of line reports that adjust to changes in spread and provide fleet wide consistency
- NRT report which evaluates line quality and the need for reprocessing
DATA MANAGEMENT, VISUALIZATION AND SUPPORT INFRASTRUCTURE

With 10+ years in operations and more than 50 installations to date, Orca remains the proven choice for towed streamer navigation software. Orca’s data management and visualization platform provides a robust and flexible infrastructure that enables the following features and our ability to make changes to the software at short notice to meet your changing operational requirements:

→ **Consolidated Configuration** to centralize set up and minimize manual entry.
→ **Centralised Diagnostics/Alarms** enables the user to evaluate the status of all systems on a single screen with the ability to drill down and analyze specific issues.
→ **Multi-vessel Management** to simplify management of multiple vessels in a single acquisition project by setting up inter-vessel communication links, assigning independent tracks, automatically merging spread configurations, etc.
→ **Web Survey Management** provides a survey-wide view of acquisition to remote users and enables them to configure and view customized reports, manage logs and edits, regenerate end-of-line deliverables, and monitor production status.
→ **Support for the latest data formats** – including P1, P2 and P6, metocean, current, and other types of data
→ **Integration with the Marlin and Narwhal product suites** – to increase efficiencies and minimize risks while working in heavily congested areas or in or near ice

WORLD CLASS TRAINING AND SUPPORT

In a demanding, critical and expensive operation such as streamer seismic, its important to make sure operators are skilled, but also that help is quickly available should unforeseen problems occur. To ensure customers understand the extent of capabilities and achieve the maximum benefit of the technology, ION offers a comprehensive range of training courses created and delivered by professional training staff, working in tandem with experienced field engineers. In the event any in-field issues occur, ION supplies expert advice and support through 24 hour/365 days a year phone and email service staffed by support engineers working with development staff to avert critical issues.