



Benefits

- Rapid analysis and report generation
- Save significant time and cost
- Minimize laborious manual boulder interpretation
- Easily create deliverable reports of findings

Automatic boulder detection for sidescan sonar

The Survey Engine® Automatic Object Detection Package (“SEADP”) automatically detects boulders on the sea bed in sidescan sonar data and marks their position together with measuring each boulder’s size (length, width and height). Furthermore, automatically detected boulders can be comprehensively reported on, or edited, in the same manner as for manually tagged boulders. Overall the SEADP gives a significant time and cost reduction in the task of tagging and reporting boulders.

SEADP, a new product for the subsea geophysical market, uses artificial intelligence (AI) based techniques to analyse object and shadow details to detect objects and calculate their measurement properties. Trained on 29,000 boulders, manually tagged by professional geophysicists, with varied input parameters (sonars, resolutions, boulder size, seabed types) the algorithm generates highly accurate detection of boulders and their sizes in varying environments. Our current detection rate for boulders is 91% when compared to a manually tagged process. The unreported 9% is outside of our current detection criteria due to size of the boulder. Those boulders that are 1 or 2 pings along track are outside of our detection criteria.

For optimal results, objects should be more than 2 pings wide in the along-track direction and the raw sidescan data generally should be clean and noise free.

SEADP is an optional module for Survey Engine Sidescan+ and Survey Engine Mosaic+, two fully integrated software module which produce high quality mosaics, speeding up sidescan data processing, interpretation and processing for large, high resolution data sets.

Based on a scalable database architecture, Survey Engine provides rapid access to all survey information, even in largest datasets. Integrating SEADP with our Survey Engine software takes the user from raw data files to fully interpreted and defined GIS and CAD deliverables in a seamless, integrated environment.

As with all of our products, SEADP, Sidescan+ and Mosaic+ are backed up by our 24/7 Technical Support and software maintenance program ensuring assistance is at hand whenever and wherever you require it.

Features (SEADP)

Automatic Boulder Detection

to efficiently and effectively identify subsea boulders on the seabed

Identify each boulder on mosaic

in easily defined areas by the user

Generation of reports in multiple formats

including ASCII Test Format, HTML, Microsoft Excel Worksheet, and XML

Rapidly generate reports to define boulder characteristics

such as length, width, height, position, and a comprehensive list of boulder snapshots

No data subsampling compromises

view your data at the full acquisition resolution and beyond for enhanced feature interpretation.

Supports very large projects

import many thousands of line kilometers into a single project.

Interpret mosaic or sidescan window with quick filtering of interpretation types

to perform your interpretation in either window and see your results in both.

Mosaic survey line transparency

full support for full and partial survey line transparency within the mosaic to produce superior quality mosaics

Improved mosaic navigation performance

with the use of an increased number of zoom layers that improve the overall performance of navigation

Large choice of output formats

extremely high resolution mosaic images can be exported in GEOTIFF format and interpretation exported in GIS, CAD, Excel, or ASCII

Support for Seabed Survey Data Model (SSDM)

from data file through to GIS in a seamless transition

Efficient and intuitive seabed tracking feature

seabed is tracked effortlessly with powerful seabed tracker

'Objects' feature to assist with interpretation

import geotechnical and other contextual data to aid interpretation

GIS Overview

shows the track of every line in the survey

Preliminary mosaics generated during project import

are displayed to provide a quick view of project data and increase project efficiency

User configurable interpretation types

with ability to share between projects

Powerful and flexible reporting tool

allows fast generation of Excel®, ASCII, CSV, HTML, and XML format reports

Inputs

Survey Data	CodaOctopus (.cod); Extended Triton Format (.xtf); EdgeTech (.jsf); Sonar Equipment Services (.ses); Seismic data in SEG-Y and above formats (with Seismic+ option).
GIS Overlay Images	Tagged Image File Format (.tif, .tiff); AutoCad DXF™ (.dxf).
Corrected Navigation	CodaOctopus Corrected Navigation Format (.cnv)
GIS Objects	Any file in any format can be imported and launched in their own viewer

Outputs

Image Output	Tagged Image File Format (.tif)
Vector Output	AutoCad DXF™ (.dxf)
Report Output SEADP	Length, width, height, position, and snapshot list of each boulder
Report Output Features	Microsoft Excel Worksheet (.xls); ASCII text (.txt, .csv); Extensible Markup (.xml); Webpage format (.html)

System Requirements

	Minimum	Recommended
Processor	Quad Core -2.0 GHz or faster. 64 bit supported	Quad Core - 2.0 GHz or faster. 64 bit supported
Memory	8 GB	16 GB or more
Hard Disk	2 GB disk free	5 GB disk free
Display	Single Display 1920x1080	Dual Display 1920x1080
OS	Windows 10. 64 bit supported	Windows 10. 64 bit supported
USB Port	1x USB port for security key	1x USB port for security key
Graphics Card	Desktop: NVIDIA GeForce GTX 1660 with 6GB RAM Laptop: NVIDIA GeForce RTX 3060 with 6GB RAM	Desktop: NVIDIA GeForce RTX 2080Ti with 6GB RAM Laptop: NVIDIA GeForce RTX 4080 with 6GB RAM

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