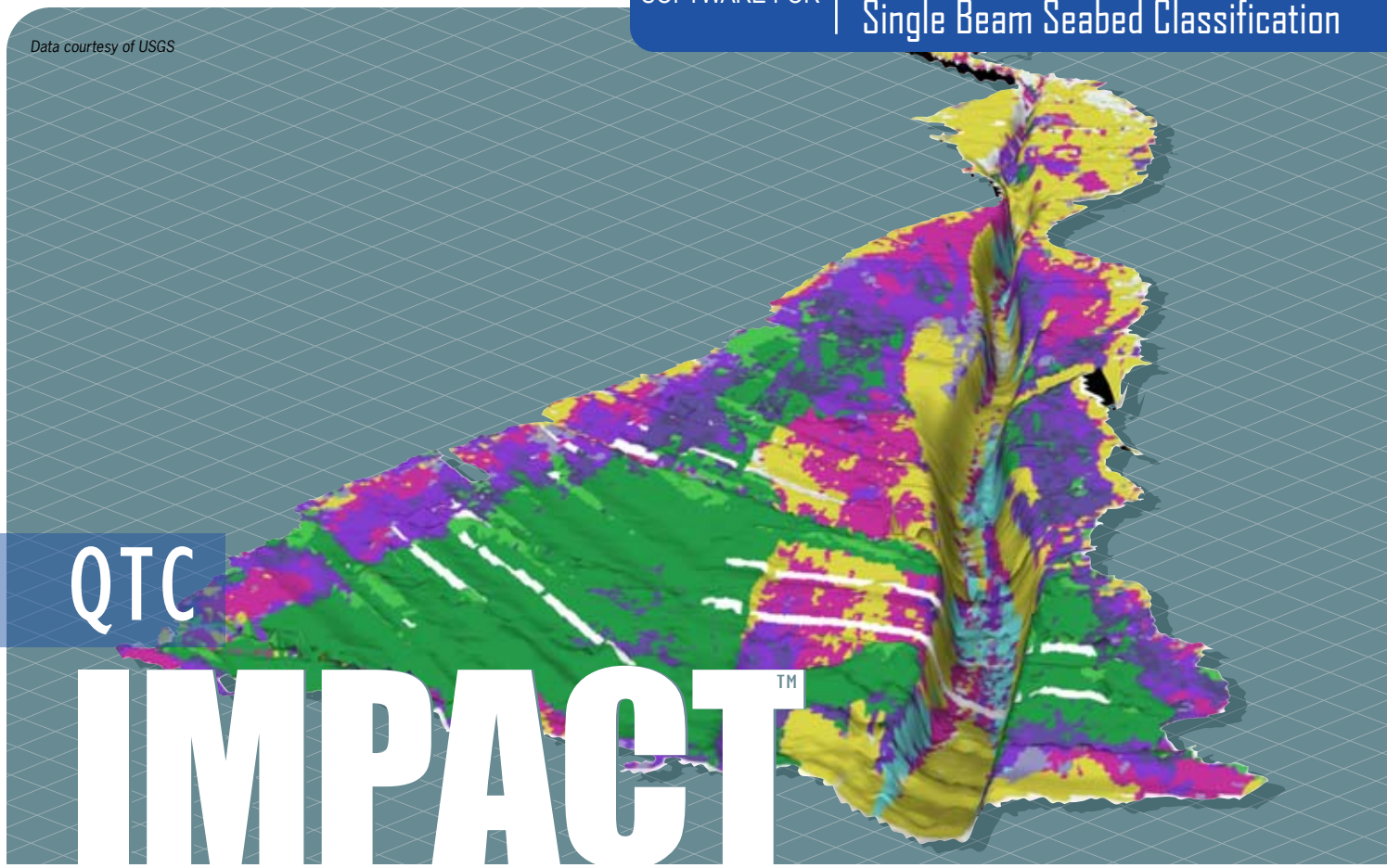
SOFTWARE FOR Single Beam Seabed Classification



QTC IMPACT™

Classification of Single Beam Echosounder Data

QTC IMPACT™ is a powerful tool for extracting information about the seabed from echosounder data. Seabed echoes, which can be read from a number of different formats, are processed to define boundaries of discrete acoustic classes of bottom type. Accuracy and repeatability are ensured by using only the first echo-return from the seabed.

Seabed echoes are processed to present geo-referenced acoustic classes with no prior knowledge of seabed type using unsupervised classification techniques and automated 3-D clustering. Supervised classification based on a user-defined catalogue of seabed types is also available.

This approach provides unique flexibility in describing the seabed and correlating the data with other information to quantify seabed features or habitat.

- **Software-only solution for classification of echosounder digital data**
- **Straightforward, structured process to move from echoes, through class definition and identification to final results**
- **Unsupervised classification processing requires no prior calibration or catalogue, while existing catalogues can be used for supervised classification**
- **Comprehensive quality assurance tools ensures consistency, accuracy and repeatability of results**
- **Flexible processing options for research applications, or automated processes for regular surveying**
- **Simple ASCII data output for GIS and mapping**

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Making Data Intelligent™

QTC IMPACT

Classification of Single Beam Echosounder Data

Unsupervised Acoustic Seabed Classification

- *Prior calibration not required*
- *Increased confidence in classification results*
- *Acoustic classes are identified and associated with particular seabed types*
- *Advanced statistical techniques determine the variability of seafloor substrate*

Feature Extraction Algorithms

- *Cumulative Integral*
- *Quantile and Histogram*
- *Wavelet Analysis*
- *Fast Fourier Transforms*

APPLICATIONS

Fisheries management, habitat assessment and environmental monitoring

Coastal zone management

Dredging and port construction

Hydrographic and route surveys

Military: MCM and ASW

Echo Post-Processing & Classification

- *Graphical editing tools provide comprehensive quality control of data and results*
- *Accurate bottom picking, quality control and echo trace visualization*
- *Incorporation of GPS position*
- *Processed data are GIS ready*
- *Automated objective clustering*

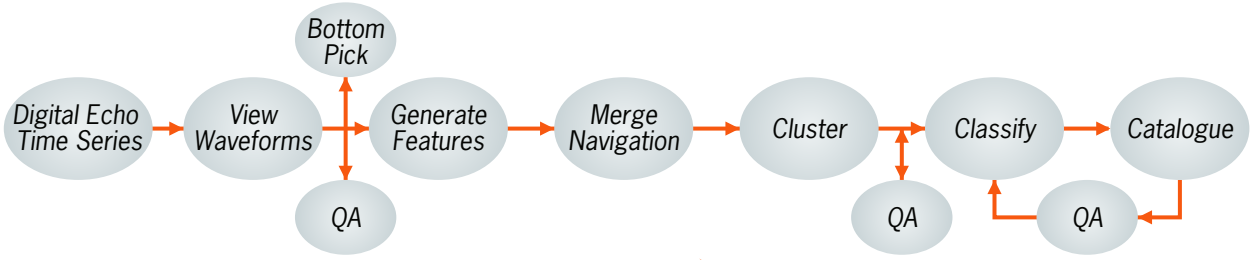
Supported Systems:

QTC IMPACT currently supports digital echo data from the following systems:

- *Atlas Deso*
- *BioSonics*
- *Knudsen*
- *Odom*
- *Quester Tangent QTC VIEW*
- *Simrad EA400 / EA600*
- *SonarData Echoview custom export*

New systems and capabilities are continuously being added. See www.questertangent.com for a current list of supported systems.

Data Processing Flow



QUESTERTANGENT™

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Specifications subject to change without notice.