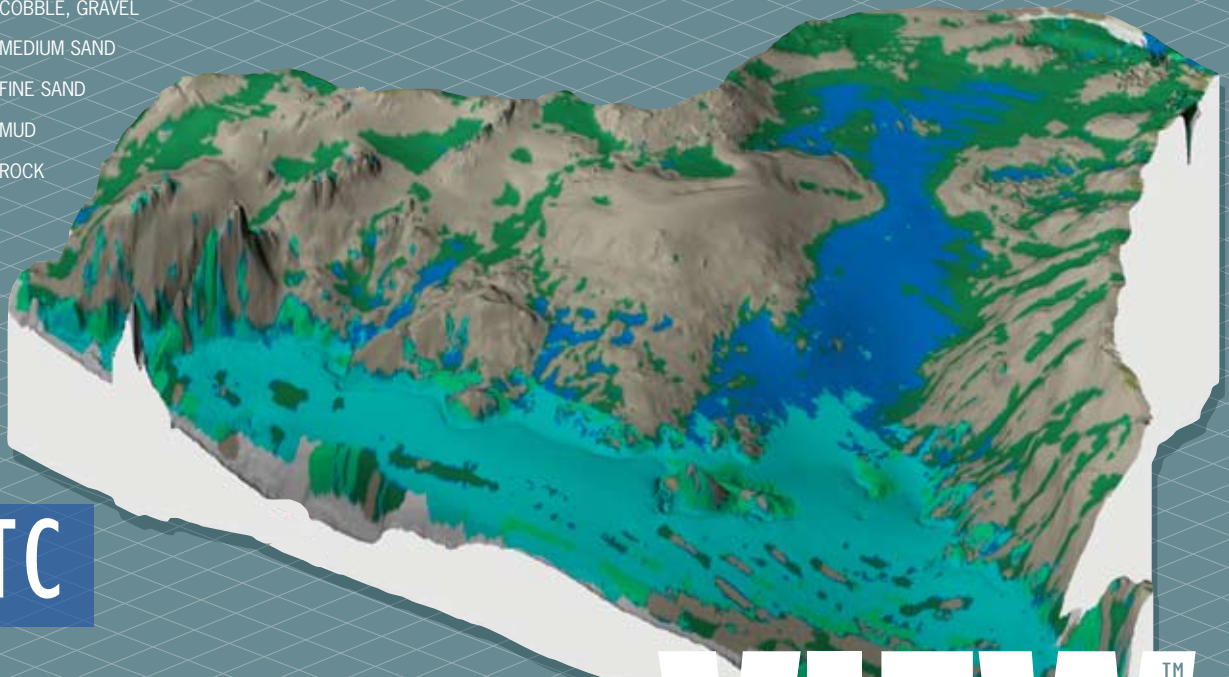


Data courtesy of the Canadian Hydrographic Service

- COBBLE, GRAVEL
- MEDIUM SAND
- FINE SAND
- MUD
- ROCK



QTC

SWATHVIEW™

Classification of Multibeam and Sidescan Sonar Data

QTC SWATHVIEW™ is software that processes raw backscatter data from a wide range of multibeam, sidescan and interferometric sonar systems to make maps of seabed type. The software uses the data recorded by the source sonar - no additional hardware is required. Classes typically include material type (sand, gravel, mud) and features (ripple marks, bedrock, seagrass). A map of acoustic classes defining bottom type is generated by grouping acoustically similar areas of the seabed.

QTC SWATHVIEW™ combines two proven products, QTC MULTIVIEW™ and QTC SIDEVIEW™, capturing all the features and functionality of both, providing simple but powerful bottom classification.

Automated classification of sonar imagery with quality control tools; saves time and improves objectivity

Capable of classification resolution as fine as 9X9 pixels

Image segmentation approach does not require calibrated backscatter data

Easy to use software provides for both supervised and unsupervised classification

Patented approach automatically corrects for changes in backscatter intensity due to survey geometry and systemic artifacts

Suite of algorithms responds to backscatter intensity and texture to produce accurate discrimination of sediment and bottom features

Emphasis on data quality control and filtering ensures accurate and repeatable results

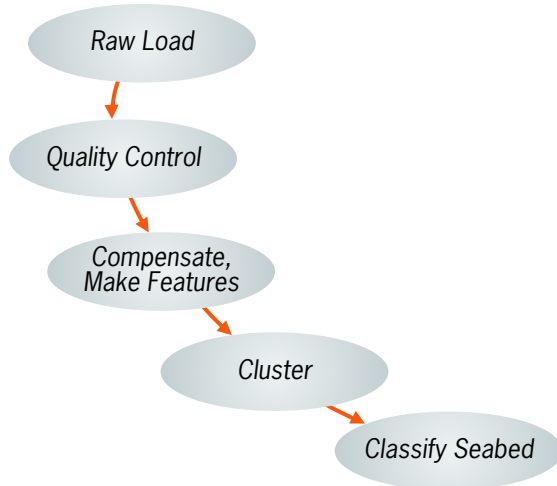
Simple ASCII data output for GIS and mapping



**QUESTER
TANGENT™**

Making Data Intelligent™

Data Processing Flow



Supported Systems

QTC SWATHVIEW supports most formats and data acquired by the following sonars:

Multibeam

Atlas, L3-Seabeam, Odom, R2Sonic, Reson, Simrad

Sidescan

Benthos, DSME E&R, Edgetech, GeoAcoustics, Imagenex, Klein, Knudsen, Marine Sonic, Odom, Simrad, StarFish

Interferometric

C3D, GeoSWATH Plus, Klein, SEA SWATHPlus

New systems are continuously being added. Contact us or visit www.questertangent.com for a complete list of supported systems.

APPLICATIONS

Fisheries management, habitat assessment and environmental monitoring

Coastal zone management

Hydrographic and route surveys

Military: MCM and ASW

Dredging and Port Construction

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Feature Extraction Algorithms

QTC SWATHVIEW analyzes each portion of the sonar image to generate statistical features that capture backscatter amplitude and texture and are indicative of seabed type. This set of features has been selected for optimal discrimination ability and rapid processing.

Basic Statistics

Mean, standard deviation, and higher moments are indicative of acoustic impedance changes and interface roughness.

Grey-Level Co-occurrence Matrices

GLCMs capture amplitude changes between neighbouring and near-neighbouring pixels in a portion of an image. These second-order statistics are widely used to assess texture in many types of images.

Circular Power Spectra

Fourier transforms give power spectra of amplitudes following a spiral path of pixels out from the centre of each image portion.

Fractal Dimension

Fractal dimension is a sensitive measure of the distribution and structure of backscatter variations.

Product Features

- Changes in backscatter due to survey geometry roll are compensated for, using a patented compensation technique.
- The coordinate system of the output includes options for UTM, Geographic and State Plane and the ability to specify and customize the Geoid.
- Automated objective clustering.
- The compensated image can be exported for use in other software packages.
- A user-configurable final output file format is available.



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