Swath acoustic seabed classification….The QTC advantage

Feature	*Benefit*
Patented Image Compensation	Swath sonar images are affected by survey geometry and systemic artifacts. Grazing angles and range issues influence backscatter intensity. QTC software incorporates a very sophisticated, ***unique patented approach*** to compensate the image for these artifacts so that final classification is based on seabed type and not survey geometry. ***This is the key to good classification results***. The process requires no decision-making or input by the data processor.
Compensated Image Export - ***CompEX***	An interim step in the process allows the export of the compensated image to enable ***production of excellent mosaics*** in third party software without the typical striping due to survey geometry artifacts.
No calibration required	Software works on standard survey data, using regular data collected during normal swath surveys. ***No additional hardware*** is required, and ***no calibration of the sonar*** is required
High resolution	The software provides ***for multiple classifications across the swath*** to truly represent seabed complexity. Resolution as fine as 9x9 pixels on the image is possible.
Adaptive Clustering using PCA	Acoustic information is separated into different classes using Principal Components Analysis. This means a single product can be ***highly robust across many different seabed types***, from very soft seabed to rock and sand, across a full range of water depths and sonar platforms.
Unsupervised Classification	Classification can be conducted with no a-priori knowledge of the seabed in the survey area, i.e. ***no pre-existing catalogue of seabed types is required***.
Supervised Classification	With minimal ground truthing the software can be used to ***generate a catalogue of seabed classes*** as a basis for classification with a particular sonar. This saves future time in the field as data are processed against the catalogue generated by the user.
Automated Classification Engine - ACE	Provision of an automated process for 3-D clustering of features into acoustic classes ***ensures objectivity and saves operator time***. Provides a ***range of statistically sound class maps***, permitting the choice of the most relevant.
Integration with third-party software	Integration with other software such as CARIS and Hypack ***saves processing time*** by using data cleaning information from the other software. An "Export to Caris" button saves time and effort in bringing final results in CARIS software.
ASCII output	The ***final output file is a data table in simple ASCII***, easy to import into GIS and mapping packages for correlation analysis and display.
Built-in Quality Assurance tools	Included in the results, for each data point, are Confidence and Probability measures to help ***establish quality*** of the results and ***facilitate ground truth planning.***
Simple, menu-guided operation	The software is easy to use, with logical steps from data loading to classification. This significantly ***reduces time needed*** to learn how to use the software.
Highly Automated	The software can be used in a highly automated fashion with minimal user input or decision making required. Time to reach a result is ***computer processor time rather than human time***.
Minimal Critical Decisions Required	Standard processing steps minimizes user inputs such that ***results are not impacted by critical user decisions***. It also enables less skilled operators to run routine processes.
Highly flexible	Advanced processing steps allow for flexible, in-depth processing by more skilled users to undertake ***detailed analysis of a data set*** in multiple approaches.
Robust across platforms	The software processes data from ***all major multibeam and sidescan sonar vendors***.
Batch Processing	Sophisticated batch processing allows for the handling of large data sets in multiple lines. This ***reduces operator time*** at the computer.
Dedication to seabed classification	Quester Tangent Marine is dedicated only to seabed classification. Purchasers of swath classification software receive the benefit of many years of experience in the field, both ***built into the software and in consulting and advice***.