# The automation of multibeam processing and interpretation for habitat mapping

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Multibeam data provide two excellent datasets for the delineation of habitats on the seafloor. Bathymetry maps are usually well calibrated and have calculated uncertainties thus providing a stable base for the start of interpretation. Backscatter imagery, which can provide valuable additional information on seafloor type, is usually less well calibrated and can be very dependent on the survey characteristics and data processing method used.

Backscatter imagery was once discarded due to the poor nature of processing. Fortunately processing software has improved massively over the last few years. However the process is often hidden in a black box and the results have to be accepted as is. Examples will be shown of data processing variations from different software systems, each with their own advantages. In addition, the many levels of interpretation will be explored. The level of subjectivity vs. objectivity is often crucial to the final result and its relevance to the real world. Examples of expert interpretation will be shown and compared to increasingly objective methods of classification, moving through the spectrum of interpretation from manual rule-based Object Based Image Analysis, over supervised classification to fully automated unsupervised classification (see Figure 1).

This presentation aims to review the variations in the many survey characteristics such as navigation, multiple imagery priority and calibration, and will illustrate their effect on the resulting habitat maps. The absence of true backscatter calibration means that the interpretation of the imagery has to adapt to data acquisition parameters. If standardisation of backscatter imagery can be achieved this will aid the automation and speed of processing, and ultimately the interpretation, as the rules for classification could then be refined by the user community.

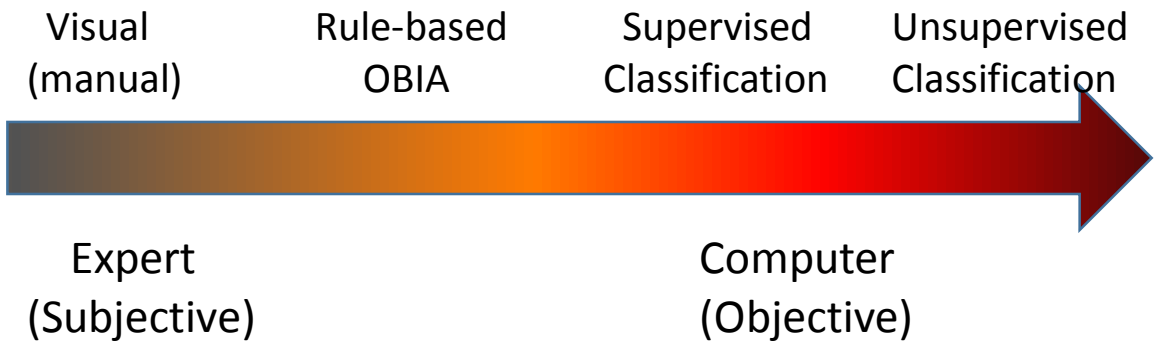


Figure 1. Interpretation spectrum from subjective to objective. The choice often depends on the amount of ground-truth data, the reliability of the data source and its processing.