



15th NORTH INDIAN OCEAN HYDROGRAPHIC COMMISSION MEETING

Muscat, Oman
16 - 18 March 2015

Satellite Derived Bathymetry (SDB) Explanatory Note

Satellite Derived Bathymetry (SDB) is a type of remote sensing that uses multi-spectral satellite imagery to model light penetration through the water column and derive a depth.

SDB offers a potential solution for the mapping of shallow coastal waters where there is little or no existing hydrographic data and/or no prospect of obtaining the resources required to proceed with extensive surveys using other higher accuracy methods in the foreseeable future.

SDB as a technique has been around for circa thirty years. However, it is only with the increase in the spatial resolution capability of modern sensors, that its use in gathering datasets to be used in navigational charts, becomes a possibility.

Whilst SDB promises to be a useful asset in the modernisation of many charts of remote areas, its suitability still needs to be proven. The UKHO uses many different sources of bathymetric data in its navigational products. In doing so it becomes essential that the differing levels of reliability of the data are conveyed to the end user, the mariner. The assessment of reliability is based upon an in depth knowledge of the various data acquisition techniques and their relative accuracies. At present, the quality characteristics of SDB are not well understood; as a consequence the UKHO is actively performing trials designed to identify the limitations of the technique.

The UKHO's trial involved the comparison of a high accuracy, high resolution multibeam survey, and an SDB dataset, in an area where conditions are expected to be favourable for SDB. This test should indicate the inherent level of uncertainty in a particular commercially available SDB dataset, and allow the UKHO to make an informed decision as to its potential use.

The gathering of the multibeam reference dataset took place in October 2013, with the imagery being tasked at the same time.