10th CSPWG MEETING
Wellington, New Zealand, 21-24 January, 2014

Paper for Consideration by CSPCWG

Satellite-derived bathymetry

Submitted by:	UK
Executive Summary:	The potential of acquiring bathymetry from satellite-borne sensors (satellite-derived bathymetry) is rapidly emerging. Its application and value may be particularly suitable in areas too resource-intensive or environmentally problematic for conventional seaborne survey platforms. How does its accuracy compare with 'traditional' surveys? How should it be used on nautical charts?
Related Documents:	None
Related Projects:	None

Introduction / Background

1. It was recently announced in Hydrographic News (12 November 2013) that German and Australian scientists have launched a set of high-resolution, shallow-water topographic maps for the entire Great Barrier Reef. These digital maps of the coral reefs, using satellite-derived depth (bathymetry) techniques, are a step towards identifying, managing and essentially preserving and protecting what lies beneath the surface in this World Heritage area.

2. France has conducted trials and product generation in coastal areas of Indian Ocean and Pacific Ocean states.

3. UKHO is currently reviewing the status of satellite-derived bathymetry (SDB) technology. At this time, due to a lack of a full understanding of the techniques and SDB outputs (eg accuracy uncertainty, error budget), such data is not being included in nautical charts.

4. However, UKHO does recognise its potential (and limitations) as a survey data source and is continuing its investigations. A trial is underway to compare SDB against a 'control' conventional multibeam survey. All sources of error are being minimised to support the analysis of the results and to mitigate against ambiguity. To date, the multibeam survey is complete and the SBD data will be delivered in the period January to March. The SBD data will then be assessed against the multibeam data and, if the SDB data is acceptable, UKHO will consider how best to represent it in charts (standard paper and ENC).

5. In some ways, there may be parallels with the previous development of LIDAR technology for similar purposes.

Action required of CSPCWG

6. UKHO would be very interested to know the experiences of other HOs in the matter of SDB data; for example:
   - acquisition programmes,

- formal or informal trials or assessments of its accuracy,
- use in generating outputs,
- inclusion in charts.

7. Further, in order to prepare for a standardized approach, early consideration may be given to:
   - considering how to present such data in charts,
   - how its provenance and reliability may be communicated to the chart user.