**Applying Automated Methods For Sediment Classification In Regional Scale Seabed Mapping Programmes - A Case Study From MAREANO**

N.J. Baeten1, T. Thorsnes1, M. Dolan1, L. Bjarnadottir1, A. Jarna1, V. Bellec1, S. Elvenes1,

A. Lepland1, T. van Son1, R. Bøe1, M. Diesing2, T. Le Bas3, R.M. Cooper4

1. Geological Survey of Norway (NGU), Norway

2. Centre for Environment, Fisheries and Aquaculture Science (CEFAS), UK

3. National Oceanography Centre (NOC), UK

4. British Geological Survey (BGS), UK

Sediment grain-size maps of the Norwegian continental margin, within the MAREANO programme have so far been produced using expert interpretation. The available data consist of acoustic data (multibeam bathymetry, backscatter and TOPAS) and ground-truth video data and sediment samples. The maps are created in ArcGIS.

This method is, however, relatively subjective, not repeatable and time consuming. To improve the mapping procedure within the MAREANO programme, a test project has been initiated to compare different (semi-) automated methods, to assess their benefits and challenges, and to find out which one(s) will qualify for future use. Both the quality of the end product map, and the time that was necessary to produce it will be used as criteria. Previously published sediment maps and ground-truth data will be used for testing. The project is a joint effort between the national seabed mapping programmes MAREMAP (UK), INFOMAR (Ireland) and MAREANO (Norway).

Two testing areas were chosen with high-resolution bathymetry and backscatter data. The data were collected with the same multibeam system, and have as few artifacts as possible. Oceanography data were tested in addition to the available acoustic and ground-truth data. The automated methods used were; (i) object-based image analysis (OBIA; using eCognition), (ii) RSOBIA ArcGIS toolbar developed by T. Le Bas, and (iii) Using the standard functionality of ArcGIS to clean and classify the backscatter mosaic via a series of PHYTHON scripts.

We will evaluate to what extend the use of automated methods can minimize subjectivity and whether it will be less time consuming than producing maps with expert interpretation. We also discuss to which degree expert interpretation will still be necessary.