Geophysical Research Abstracts
Vol. 14, EGU2012-13612, 2012
EGU General Assembly 2012

Hydroacoustic seafloor classification in the SE North Sea

H.C. Hass (1), A Bartholomä (2), D. Bürk (3), P. Holler (2), F. Mielck (1), and H.-C. Reimers (4)

(1) Alfred Wegener Institute for Polar and Marine Research, Wadden Sea Research Station, List, Germany (christian.hass@awi.de), (2) Senckenberg by the Sea, Marine Research Department, Wilhelmshaven, Germany, (3) Institute of Coastal Research, Helmholtz-Zentrum Geesthacht, Germany, (4) State Agency for Agriculture, Environment and Rural Areas (LLUR), Flintbek, Germany

Over the last years hydoacoustic investigations of the seafloor became a strong tool for habitat mapping. Directives of the European Union emphasize the need for reliable, high resolution and at the same time cost-effective methods to map the ecologic status of coastal marine areas which are highly dynamic and vulnerable to disturbances. Aside from the difficulties that arise from monitoring extended areas, standardized methods are still not existing. This results in habitat maps that cannot easily be brought together over larger areas. We present here initial results of the project WIMO ("Scientific concepts for monitoring the German Bight, SE North Sea") that aims at testing different hydroacoustic mapping tools in order to work out a standard routine for habitat mapping purposes.
We studied five areas using an IMAGENEX YellowFin sidescan sonar, a BENTHOS 1624 sidescan sonar, a SONAVISION RoxAnn seafloor classification system among other seafloor classification systems, and a Kongsberg EM710 multibeam system. Sediment samples for groundtruthing were taken with a HELCOM grab sampler. The working areas are all in the coastal zone of the SE North Sea with water depth between 10 and 40 m. The parameters measured include depth and backscatter (multibeam), hardness and roughness (RoxAnn), seafloor sonographic imagery, and granulometry (grab samples). We present classification methods that implement selected parameters and all of the parameters, partly based on self-programmed routines. The results reveal that all methods are capable to gather information important for habitat assessment. However, the information provided by the different systems is not always the same and simply merging the data is no solution. We show different approaches to take advantage of the data and suggest combinations of instruments and parameters for efficient mapping standards.