



The OCTAS project, the interrelationship between the geoid, the mean sea surface and the mean dynamic topography

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Preliminary results from the Norwegian OCTAS project is presented. OCTAS, Ocean Circulation and Transport Between North Atlantic and the Arctic Sea, is a multidisciplinary project combining geodesy, satellite altimetry and oceanography funded by the Norwegian Research Council. The main objective is to enhance the Norwegian capacity in Earth observation technologies through determining the ocean circulation and transport by using satellite techniques in combination with geodesy. The study area is the North Atlantic and the Fram Strait between Svalbard and Greenland in particular. The determination of a high precision gravimetric geoid for the OCTAS study area is one of the objectives. This does however require access to an error free high quality gravimetric dataset, and the process of establishing such a data set by adjusting older marine data through comparison with modern airborne and marine gravity data sets is described. Combining the updated gravity data set with data from the CHAMP and GRACE satellites allows the determination of a geoid for the OCTAS region. The abundance of sea ice and limited number of altimetric satellites within the OCTAS region makes the determination of the mean sea surface a very challenging task, and the efforts devoted in deriving this surface is shortly described. Combining the computed geoid and mean sea surface models, the mean dynamic topography, MDT, is derived.

MDT's derived in this way are assessed by inter-comparison with oceanographically derived MDT models. The status of the project is given, including identification of challenges that must be addressed in order to achieve the project objectives.