

ENHANCED OCEAN MODELLING

The GOCINO support action aims at contributing actively to the pre-operational capability in ocean modelling for GMES utilizing data from the approved ESA satellite mission GOCE that is planned for launch by spring 2008.

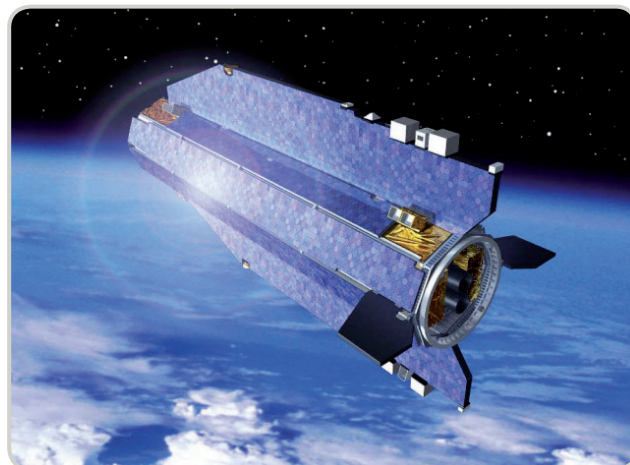
The Gravity and Ocean Circulation Experiment – GOCE satellite mission is a new type of Earth observation satellite that will measure the Earth gravity and geoid with unprecedented accuracy. Combining GOCE geoid models with satellite altimetric observations of the sea surface height, substantial improvements in the modelling of the ocean circulation and transport are foreseen.

GOCINO will support the exploitation of Earth observation data from the forthcoming satellite mission GOCE through the following specific networking activities:

- Dissemination of the scientific results from an EU funded research project “Geoid and Ocean Circulation in the North Atlantic – GOCINA”;
- Use GOCINA products and recommendations to develop strategies for the implementation of GOCE products in operational ocean models;
- Facilitate the interaction and communication between the GOCE data processing consortium and the oceanographic users to transfer knowledge and exchange experiences and requirements;
- Promote the exploitation of GOCE data in the operational centres developed for the GMES maritime core service.

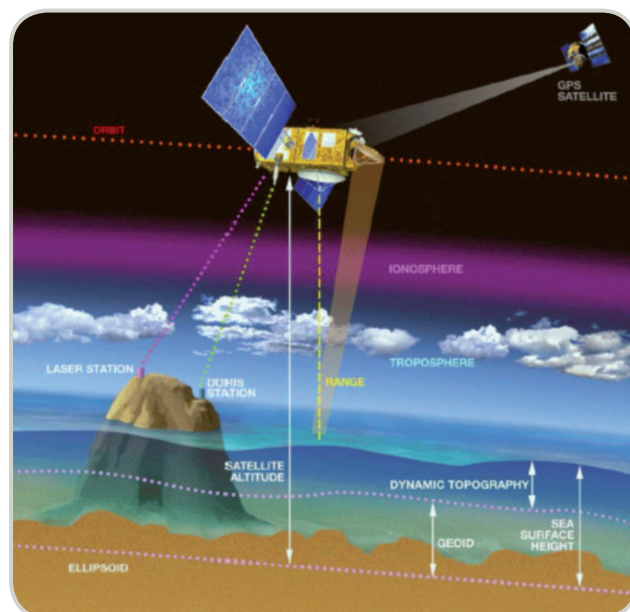
IMPROVED OCEAN CIRCULATION MODELLING

If the oceans were motionless the mean sea surface would correspond to the geoid reflecting variations in the gravity field. In the GOCINA project a new accurate geoid has been determined by merging existing gravity data with new airborne gravity data. Differences in the ocean water density, winds, and variations in air pressure cause the height of the mean sea surface to depart from the geoid creating the mean dynamic topography, which provides the absolute reference surface for ocean circulation and heat transport.



The GOCE satellite - Source: GOCINO-CNES

Within the GOCINA project it was demonstrated how an improved mean dynamic topography model could be derived by combining the mean sea surface determined from space with geoid and ocean modelling results. Dissemination of this substantial improvement in the modelling of the ocean circulation and transport will be presented through the GOCINO support action.



Sketch showing the relationship between the geoid, the Mean Dynamic Topography (MDT – the mean value of the Dynamic Topography) and the Mean Sea Surface (MSS – the mean value of the Sea Surface Height). Improved geoid models from GOCE and MSS from ENVISAT is expected to enhance the performance of operational ocean and seasonal forecasting models.

GOCINO

GOCE in Ocean Modelling



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- Danish National Space Centre, Denmark
- Collecte Localisation Satellites, France
- Nansen Environmental and Remote Sensing Center, Norway
- University of Reading, UK

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PROJECT INFORMATION

GOCINO: GOCE in Ocean Modelling
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