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Global altimetric marine gravity field mapping. The impact of Cryosat-2 data.

O. B. Andersen and L Stenseng
DTU Space, Geodesy, Copenhagen, Denmark (oa@space.dtu.dk)

A number of geophysical phenomena in the open ocean are still unresolved by conventional 1 Hz altimetry, but could be observed through the potential improvements offered by SAR, or Delay-Doppler (DD), altimetry onboard Cryosat. Since the geodetic mission of ERS-1 in 1994 and GEOSAT in 1985-1986 no satelite have provided data with groundtrack spacing adequate for marine geodesy. With the launch of Cryosat and its 369 day repeat and 7 km ground track spacing at the equator this has changed.
We have investigated the use of 18 month of Cryosat LRM data as well as Cryosat SAR and SAR-in data for deriving a new draft global marine gravity field map. Of particularly interests is the 369 days repeat offered by Cryosat-2 which provides denser coverage than even the ERS-1 geodetic mission data set. The first results based on the NOAA retracked and Cryosat LRM based data still do not seem to provide the expected improvement in global marine gravity field which is related to the relative high signal to noise still seen in these available versions of the Cryosat data.