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The impact of Cryosat-2 on global high resolution marine gravity field determination

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The newest high resolution global marine free air gravity field will shortly be available as DTU17. Data from the Cryosat-2 (369 days repeat mission) as well as Jason-1 end-of-life mission are the first new "geodetic mission" data sets released in nearly 2 decades since the ERS-1 and Geosat geodetic missions were conducted in the early 90'th and late 80'th.
The DTU17 global marine gravity field is based on seven years of retracked altimetry from Cryosat-2 as well as data from the three other geodetic missions (ERS-1, GEOSAT and Jason-1). However, the older geodetic missions ERS1 and GEOSAT only provide marginal additional information in very limited regions.
Cryoat-2 is fundamentally changing global marine gravity fields this year increasing the accuracy by a factor of two. This is due to a combination of high range precision providing sea surface height data with repeated geodetic missions. Cryosat-2 is furthermore providing nearly 3 times more data than available from older satellites flying geodetic missions (ERS-1 and Geosat). In the Arctic Ocean are testing an new combined empirical/physical retracking system that uses physical retracking of the LRM data using a reduced parameter system in combination with empirical retracking of the SAR and SAR-In data in particularly high latitude regions all the way up to 88N where no altimeters have measured before.