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Assessing GOCE Gravity Models using Altimetry and Drifters.

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The improved gravity models provided by the GOCE mission have enhanced the resolution and sharpened the boundaries of those features and the associated geostrophic surface currents reveal improvements for all of the ocean's current systems. There are still important signals to be recovered and issues related to errors in the models have been identified.
In this study, a series of newer gravity models including observations from GRACE and GOCE are compared with the DTU15MSS mean sea surface to analyse resolution capacities and to identify issues caused by errors in the models. The comparisons are carried out in regional analyses using Fourier techniques to derive the spectral characteristics as well as anisotropic patterns to identify differences and to quantify quality measures associated with the models. In addition, regional analyses are carried out using in-situ observations of the geostrophic surface currents from drifters. This is done to analyse correlations and to derive resolution capacities associated with the ocean circulation and to derive requirements to future gravity missions.