



## Abstract View

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# Estimating the Basin-Scale Ocean Circulation from Satellite Altimetry. Part I Straightforward Spherical Harmonic Expansion

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### ABSTRACT

Direct estimation of the absolute dynamic topography from satellite altimetry has been confined to the largest scales (basically the basin scale) owing to the fact that the signal-to-noise ratio is more unfavorable everywhere else. But even for the largest scales, the results are contaminated by the orbit error and geoid uncertainties. Recently a more accurate earth gravity model (GEM-T1) became available, thus giving us the opportunity to examine the whole question of direct estimation under a more critical limelight. It is found that our knowledge of the earth's gravity field has indeed improved a great deal. However, it is not yet possible to claim definitively that our knowledge of the ocean circulation has improved through direct estimation. Yet, the improvement in the gravity model has come to the point that it is no longer possible to attribute the discrepancy at basin scales between altimetric and hydrographic results as mostly due to geoid uncertainties. A substantial part of the difference must be due to other factors; e.g., the orbit error, or the uncertainty of the hydrographically derived dynamic topography.

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