



## Consistency of geoid models, altimetry, tide gauges and time-variable water levels in the North Sea

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In recent years, various high-resolution geoid models have been derived from the satellite missions GRACE (Gravity Recovery And Climate Experiment) and GOCE (Gravity field and steady-state Ocean Circulation Explorer). We investigate the consistency of these models at different spatial resolution with ERS-2 and ENVISAT altimeter time series and with tide gauge data in the North Sea. Corrections for tides and time-variable water levels are derived from an operational model of the Federal Maritime and Hydrographic Agency (BSH), and from other models. Special attention will be paid to the problem of homogenizing the spatial resolution of the various data sets.