



## **Assessment of DRAKKAR global simulations against altimetry and hydrography: Methods and results.**

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The international DRAKKAR group is building a hierarchy of ocean/sea-ice models to simulate and study the dynamical processes involved in the oceanic variability and scale interactions over the period 1958-2004. Global simulations ( $2^\circ$ ,  $1/2^\circ$ , and  $1/4^\circ$  resolution) and Atlantic/Nordic Seas simulations ( $1/4^\circ$ ) have been performed, driven through bulk formulae by a hybrid (reanalysed and observed) surface forcing function built over this period. In order to guide physical investigations, to characterise the structure of model biases, and to assess the impact of numerical and physical choices, DRAKKAR simulations are quantitatively evaluated against altimetric sea-level anomalies (SLA AVISO: 1993-present), and temperature/salinity profiles (T,S ENACT/ENSEMBLES: 1956-present). Model outputs are first sub-sampled like actual observations to build altimetric and hydrographic "synthetic observations". Real and synthetic observations and more integral quantities (mixed layer depth evolution, heat/salt contents, SLA modes of variability, etc.) are then compared over various regions, periods, and timescales. This study presents the statistical methods, and an assessment of DRAKKAR simulations.