



## **Comparing sea-surface topography modes of variability from altimetry and from DRAKKAR models**

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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 last 50 years. This hierarchy includes global and regional models at  $2^\circ$ ,  $1/2^\circ$ ,  $1/4^\circ$ , and (soon)  $1/12^\circ$  resolution, forced over the last five decades by reanalysed and observed atmospheric fields through bulk formulae. The quasi-global sea-level anomaly AVISO altimetric database (weekly SLA, 1993-present) is compared with its collocated counterparts simulated by the models in various wavenumber-frequency bands. This assessment concerns the structure and intensity of the leading modes of variability at global and basin scale, the part of the observed SLA variance simulated by the models (and their mutual correlation), and local investigations of the simulated and observed variabilities in selected regions. The realism of the oceanic variability simulated by those models is discussed, and its sensitivity to resolution is commented. More generally, this validation procedure also uses the global ENACT/ENSEMBLES hydrographic database, and is applied to all DRAKKAR simulations to guide physical investigations, characterize the structure of model biases, and assess the impact of numerical and physical choices.