

Small Scales of variability of the Sea Surface Salinity: a regional and global survey.

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in collaboration with

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Recent research, mostly from numerical simulations at very high resolution, suggests that mesoscale and submesoscale variability and the associated exchange processes are not independent but coupled in a subtle but important way, which includes a variety of potential mechanisms for the nonlinear transfer of energy between different scales. Consequently, new and high-resolution global observations of upper ocean motions are required to make progress in the critical areas of the mesoscale and submesoscale variability and their associated upper-ocean lateral and vertical exchange processes. The goal here will be to provide a regional and global survey of the small scales of variability of the SSS field with typical range from 10 to 100 km, that could be observed from *in situ* observations, and mainly shipboard thermosalinographs (TSGs). Salinity variability at these scales also has implications for the validation of satellite-based measurements, characterized by a spatial footprint of 50-150 km. Different oceanic areas will be investigated to give an overview of the SSS variability under different climatic and oceanographic large-scale conditions, and potentially to report some evidences of different dynamical regimes. A more precise view of the connection between a mesoscale structure and its signature at the surface will be presented within the dynamical context of the Coral Sea in the southwestern Pacific Ocean. Finally, in terms of perspectives, we would like to explore additional points such as vertical stratification, dissipation or turbulence at the very small scale, high-frequency variability and potential effects on the biogeochemistry fields.

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