



## Seasonal variability of mesoscale structures in the Southeast Asian Seas

The prevailing monsoonal winds across the Southeast Asian Seas produce unique mesoscale features that exhibit significant seasonal variability. In this study, we investigate the seasonal variation of several mesoscale structures within the Southeast Asian Seas in terms of their vertical structure and energy budget. This is carried out through a detailed analysis of remote sensing data and model output from an eddy resolving regional ocean model. The regional ocean model (79-160°E, 16°S-24°N) used has been developed for regional weather and climate studies and is based on the Nucleus for European Modelling of the Ocean framework with a horizontal resolution of 1/12° and 51 sigma layers. We will show the ability of the model to reproduce key mesoscale structures within the Southeast Asian Seas, such as the eddies in the Sunda shelf, and present reconstructions of the vertical structures of these features to compare across the Northeast and Southwest monsoon periods. The seasonal variability and development of these structures, both at the surface and subsurface, are investigated in terms of their thermohaline and vorticity profiles. Collectively, these results provide insights into the seasonal variability of mesoscale processes and the underlying dynamics for the region.

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