Deep-water formation and Wind-stress Forcing in an Idealized AMOC Model

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Abstract:

A two-layer model is used to study a simple overturning circulation that is driven by either an open-ocean convection or an overflow from the Nordic Seas over the Greenland-Scotland Ridge (GSR). The role of wind-stress forcing on the water-mass formation and on the deep western boundary current is investigated. We will examine how the wind-driven barotropic flow affects the dense-water transport over the sill and on how the baroclinic and barotropic adjustments of the wind-driven gyres affect the transport of the deep western boundary currents.