

# The Labrador Sea Deep Convection Experiment



The Lab Sea Group\*

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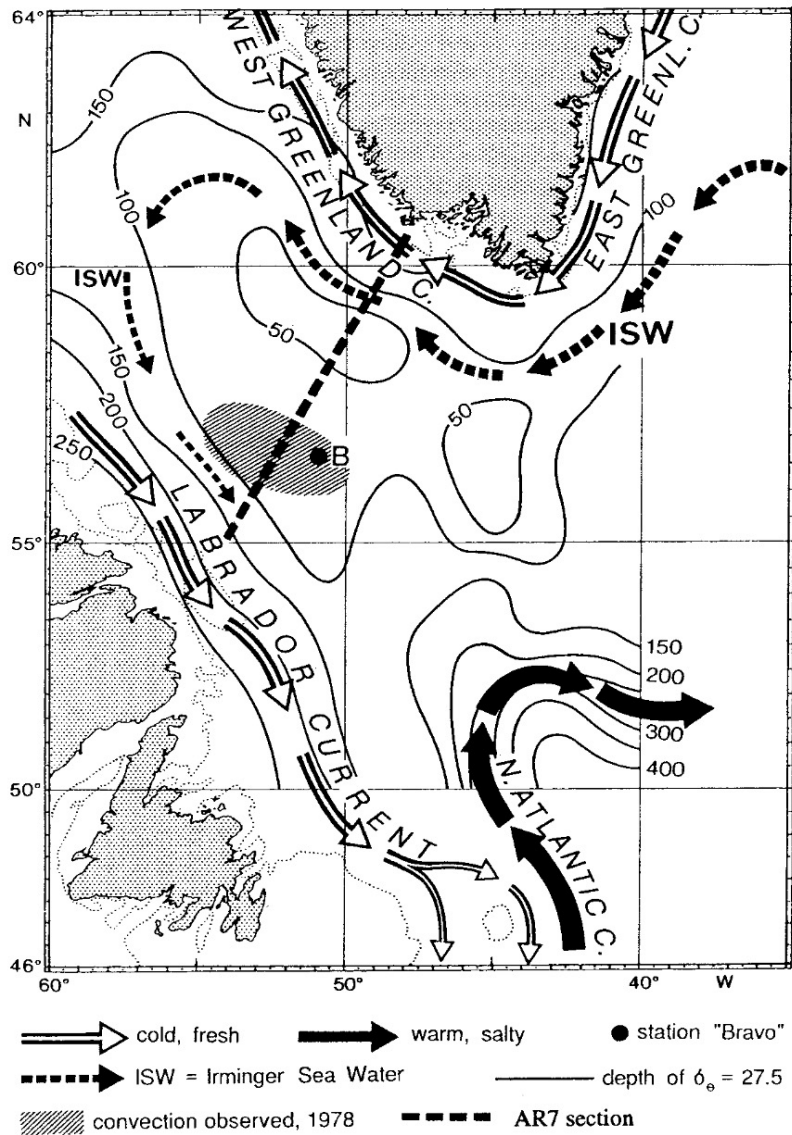


FIG. 1. Schematic showing the cyclonic circulation and preconditioning of the Labrador Sea. The typical depth of the  $\sigma = 27.6$  isopycnal in the early winter is contoured in meters. The warm circulation branches of the North Atlantic Current and Irminger sea water (ISW) and the near-surface, cold, and fresh East/West Greenland and Labrador Currents are also indicated. (From Marshall and Shott 1998.)

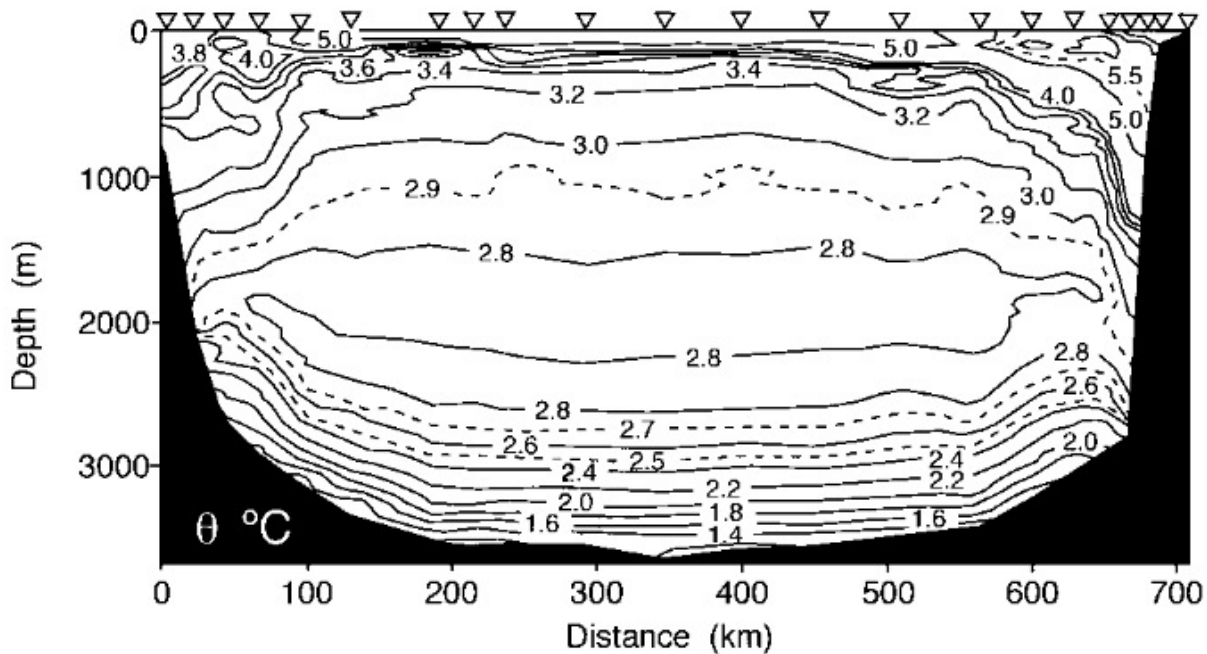


FIG. 4. Autumn hydrographic section of potential temperature (October 1996) along AR7 (marked in Fig. 1) showing the lens-shaped bolus of Labrador Sea water extending down to about 2 km, formed by convection in previous winters (courtesy of A. Clarke and J. Lazier).

Potential Temperature  $\theta$

$$N^2 = g/\theta \, d\theta/dz$$

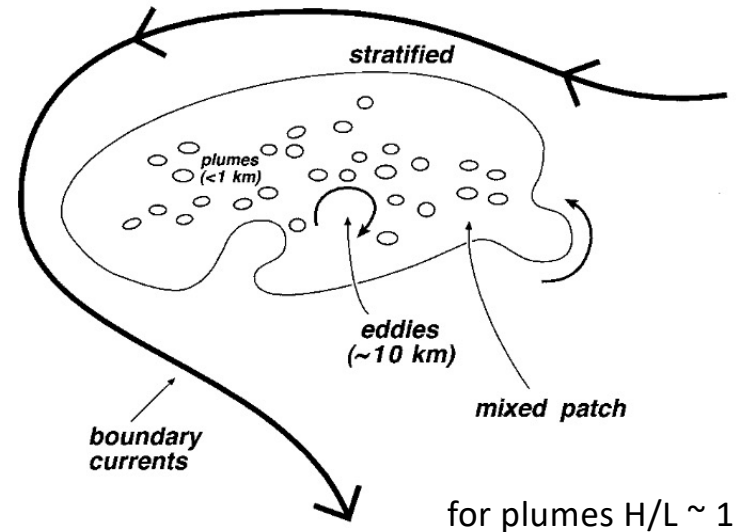


FIG. 3. Scales of phenomena involved in deep convection: the mixed patch on the preconditioned scale created by convective plumes and geostrophic eddies that orchestrate the exchange of fluid and properties between the mixed patch and the stratified fluid associated with the peripheral boundary current.