



ZONAL ASYMMETRIED IN SUBANTARCTIC MODE WATERS, WIND STRESS FORCING, AND SUBDUCTION OF ANTARCTIC INTERMEDIATE WATER

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Antarctic Intermediate Water (AAIW) is the densest of the Subantarctic Mode Waters (SAMW) and is formed as thick surface mixed layers just north of the Subantarctic Front in the southeastern Pacific.

The SAMW winter mixed layer thicknesses are zonally asymmetric, and are clearly greatest in the eastern Indian and across the Pacific, with the greatest thickness in the southeast Pacific. This SE Pacific region, which forms the AAIW, is marked to the south by the Subantarctic Front and to the north by an unnamed front. Within this formation region, salinity is lowest at the sea surface.

Northward subduction across the unnamed front injects AAIW into the subtropical gyre as the densest thermocline water. The Subantarctic Front is not the location of maximum zonal wind stress; rather the location coincides with the unnamed subduction front. The circumpolar region of thickest SAMW in general coincides with a meridional separation between the maximum zonal wind stress and the Subantarctic Front. Thus the thickest SAMWs are formed in an upwelling region north of the

Subantarctic Front, across which denser waters are advected northward through Ekman transport.