January 15, 2009

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Propagation of Antarctic Bottom water through abyssal channels in the Atlantic. Vema Channel, Vema and Romanche fracture zones.

Since 2002, Russian research ships study deep channels in the Atlantic Ocean. The flows of Antarctic Bottom Water (AABW) in the Vema Channel (31° S) Romanche Fracture zone at the equator, and Vema Fracture Zone at 11° N in the Atlantic Ocean were investigated. The properties and transports of AABW flow were studied on the basis of hydrographic sections and lowered acoustic Doppler profiler.
The main result of the study resulted in the fact that deep basins in the northeastern part of the Atlantic Ocean are filled with transformed AABW that passes through the Vema Fracture Zone but not through the Romanche FZ. The cause that AABW, which passes through the Romanche Fracture Zone, does not propagate to the north through the Kane Gap is explained on the basis of the results published by E.G. Morozov in 1995 in Deep-Sea Research. The amplitudes of internal tidal waves at the slope of Mid-Atlantic Ridge near the Romanche FZ (50 m) are much greater than those near the Vema FZ (20 m). Hence, AABW is mixed stronger at the Romanche Fracture Zone.