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^{3}He studies of Ventilation in the Southern Ocean

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^{3}He data obtained from the World Ocean Circulation Experiment (WOCE) tracer program, together with data from earlier global and regional surveys have recently been used to establish patterns of the oceanic mid-depth circulation and interbasin exchange. Here we present sections and maps of the δ^3He distribution in the Southern Ocean. We examine the information contained in these tracer fields with respect to ventilation of the world ocean in high southern latitudes. For this purpose the δ^3He fields in the Southern Ocean are linked to the interior basins and are compared with hydrographic and dissolved oxygen data. ^{3}He is tracked from its sources regions along the mid-ocean ridges (mainly in the Pacific and Indian oceans) to the regions in the Southern Ocean where most of the helium is exchanged with the atmosphere. Processes of ventilation of ^{3}He will be discussed. Finally, results derived from the ^{3}He distributions will be compared with model simulations.