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Tracer measurements in the western Weddell Sea - formation of Deep and Bottom Water and the contribution of Ice Shelf Water

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The southwestern Weddell Sea is considered to be one of the few formation regions of deep and bottom water in the southern ocean. The analysis of tracer budgets (Helium, Neon, CFCs) gives insight into the processes that set the properties of the waters formed on the shelves and in the studies of deep and bottom water formation.

During the ISPOL cruise in late 2004 a broad data set of CFCs and helium was obtained while drifting along the continental slope of the Antarctic Peninsular close to the formation region of these newly formed deep and bottom water (68.3°S to 66.9°S). Measurements near the shelf break were carried out with a helicopter deployed CTD and water bottles, allowing to take water samples from the bottom near the shelf break. Additionally earlier repeated CFC and helium sections from the southeast towards the northern tip of the Antarctic Peninsular allow to distinguish between the different types of contributing water masses and their formation history found further downstream.