



Seasonal variability on the northwestern Weddell Sea continental shelf

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For the last five decades the Antarctic Peninsula faces the strongest atmospheric warming on Earth with consequences for its glaciers and ice shelves. With more data available it becomes obvious that the fringing ocean also experiences changes which, however, might result from the natural variability of the system. The comparison of hydrographic data from the northwestern Weddell Sea continental shelf covering the austral summers and winters of the past 20 years reveals a distinct front in summer which separates water masses near surface freezing to the south from those warmer and saltier (with the exception of a 50-m thick bottom layer) to the north. The latter seem to originate from Bransfield Strait, and its southward extension (~ 64 oS in 2007) towards existing ice shelves might differ from year to year. In winter, these warm waters are replaced by cold shelf water with salinities corresponding to the salty summer bottom layer on the southern continental shelf. The comparison of the two winter cruises in 1989 and 2006 reveals a significant freshening (~ 0.1) of the whole water column at the tip of the Antarctic Peninsula.