



Seasonal variability of hydrography on the eastern shelf of the Filchner trough from 2-year long moored measurements, Weddell Sea, Antarctica

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New two-year long records from three moorings located at 76°S give insight in the seasonal cycle on the eastern slope/shelf of the Filchner trough, the region where WDW enters the southern Weddell sea continental shelf, possibly reaching the Filchner Ronne ice shelf. A persistent northward flow of ISW is found along the slope of the trough at 600m depth, while the data on the shelf indicate a seasonal cycle characterized by four phases. A distinct warm inflow period (separated in two phases) with maximum temperatures of -1°C , appears to be related to the seasonal heaving of the Antarctic Slope Front thermocline along the continental shelf break further north and a retreat of ISW within the trough. An abrupt change in current direction towards westward flow occurs at the beginning of winter, driven by a north-south density gradient set up between the dense deep mixed layers on the shelf and a density minimum over the shelf break during this time. From spring through to summer the ISW layer in the trough is thick enough to lift ISW onto shelf depth, which covers the bottom layer at our moorings.