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Four year-long observations from a key inflow region onto the southern Weddell Sea continental shelf

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The Filchner Trough on the continental shelf in the southern Weddell Sea is the gateway for warm water from off the continental shelf to flow towards the Filchner Ice Shelf. The warm water is steered southward along the eastern slope of the trough, potentially increasing basal melt rates of the ice shelf and leading to the formation of cold and dense Ice Shelf Water that overflows and contributes to the Antarctic Bottom Water. We present mooring time series from 2017 to 2021 in key inflow regions of modified Warm Deep Water onto the eastern continental shelf. Three moorings were placed across the eastern flank of the Filchner Trough close to the shelf break and captured the changes in the thickness of the northward-flowing Ice Shelf Water as well as the overlying southward warmer water. Another mooring was placed over the shallower eastern shelf and allowed a comparison between the two pathways of warm water onto the continental shelf. The four-year-long observations provide a better understanding of the processes that influence the seasonal and interannual variability in temperatures and circulation and possible changes in the flow of warm water towards the ice shelf.