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## A circumpolar coupled ocean – Antarctic ice sheet configuration for investigating recent changes in Southern Ocean heat content

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From 2016 on, observed tendencies of Southern Ocean sea surface temperatures and Antarctic sea ice extent (SIE) have shifted from cooling down (with SIE increase) to warming up (SIE decrease). This change of Southern Ocean surface thermal properties has been sustained since, which indicates that it is not solely due to the interannual variability of the atmosphere, but also to modifications in the ocean itself. Among other physical phenomena, the acceleration of continental ice shelf melt, through its subsequent impact on the Southern Ocean stratification, has been proposed as one of the potential meaningful drivers of the sea ice changes. Reciprocally, recent studies suggest that besides atmosphere forcings, the upper ocean thermal content bears significant impact on ice shelf melt rates and dynamics. Here we present a new circumpolar coupled Southern Ocean – Antarctic ice sheet configuration aiming at investigating the impact of this ocean – continental ice feedback, developed within the framework of the PARAMOUR project. Our setting relies on the ocean and sea ice model NEMO3.6-LIM3 sending ice shelf melt rates to the Antarctic ice sheet model f.ETISh v1.5, who in turn responds to it and provides updated ice shelf cavity geometry. Both technical aspects and first coupled results are presented.