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Seasonal evolution of the mixed layer heat content south of Africa

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The region South of Africa is a Southern Ocean chock point where the waters of the Antarctic Circumpolar Current meet waters originating from the Indian and Atlantic Ocean. This region is therefore important for the understanding of the global ocean circulation and climate. One of the objectives of the GOODHOPE project is to understand all processes associated with water exchanges south of Africa. As part of the project, Argo floats were released along a hydrographic section between South Africa and the Southern Boundary of the Antarctic Circumpolar Current. Using 4 years of the dataset, we focus on the heat budget of the ocean mixed layer with an emphasis on the seasonal cycle of the mixed layer heat content. We analyze the mechanisms controlling the heat budget in the inter-frontal regions of the Southern Ocean with an emphasis on the Aghulas Retroflection region. The mechanisms include Ekman transport, air-sea fluxes and lateral advection. The interannual tendency of the mixed layer heat content over the past four years is also presented and compared to other global analysis.