# Reconstructions of the Antarctic Polar Front through the glacial/interglacials

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Understanding the Antarctic Circumpolar Current (i.e., Antarctic Polar Front and Subantarctic front), which connects major three Oceans and major components of the Southern Ocean and Antarctic ice sheets system, is important (from past to present). Modern polar front ranges from 44˚S to 64˚S and is defined by the southern bound of strong SST gradient (>1.5˚ over 100 km) (Freeman et al., 2016). The observed PF position from 2002 to 2014 does not show discernable trend (either northward or southward) in response to the global warming. For the Last Glacial Maximum (LGM), the PF moved northward by 5 degrees (e.g., Gersonde et al., 2005). However, there is difficulty to reconstruct paleo SST gradient because of paucity of surface sediments, and the alternative definition of the PF (e.g., 4 degrees C surface isotherm) was applied (Kohfeld et al., 2013). In this presentation, we summarize current state of knowledge and obstacles of reconstruction of the PF through the glacial/interglacials. We also discuss appropriate methods to certainly track the past PF position.

Keywords: Antarctic Polar Front, Paleoceanography

 