

The Paradox of Accelerating Arctic Sea Ice Melting Despite the Slow-Down in the Global Warming Trend during the Recent Climate Hiatus

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Climate hiatus refers to the slow-down or even slightly decreasing trend of the mean global surface temperature. The climate hiatus has drawn much attention lately because of its ongoing occurrence as well as its inconclusive mechanism. Here in this study we show that one of the mechanisms for the climate hiatus, the subsurface ocean warming in the subpolar Atlantic, is strongly correlated to the Arctic sea ice extent. The Arctic Ocean subsurface temperature between 200 and 800 m depth has a strong correlation to the sea ice melting with a 4-year time lag. Furthermore, this warm water seems to be originating from the subpolar North Atlantic, based on the similar seawater temperature in subpolar North Atlantic at shallower depths. Thus, the accelerating polar ice melting does not contradict the slow-down of global warming; rather, the latter may even be one of the causes to the former. The deeply stored heat in the subpolar and the Arctic may actually accelerate the polar ice and glaciers melting.