



Is climate change masking polar amplification?

I.V. Polyakov (1), U.S. Bhatt (2), V.A. Alexeev (1), and X. Zhang (1)

(1) International Arctic Research Center, University of Alaska Fairbanks, United States, (2) Geophysical Institute, University of Alaska Fairbanks

Twentieth century North Atlantic and Arctic temperatures show two major warming events, one early in the century and another in recent decades. The earlier warming displays a high-latitude amplification whereas the recent warming lacks an enhanced high-latitude signal. This has led to the conclusion that different mechanisms operate for the two peaks. We argue that these two warm periods behave similarly and both display high-latitude enhancement of multidecadal variability (MDV). Ocean temperature anomalies associated with the long-term trend exhibit cooling in the northern North Atlantic and this cooling has contributed to masking the pattern of MDV in recent decades. When anomalies associated with the trend are removed, polar amplification of the recent warming event reappears. We argue that both long-term climate change and MDV should be considered when assessing climate change and variability, both in the North Atlantic and at global scales.