

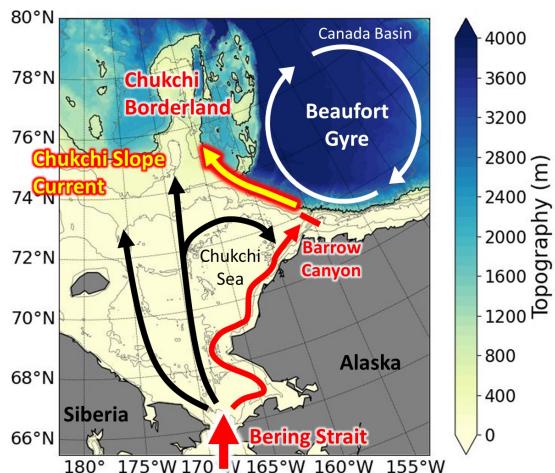


Subsurface warming associated with Pacific Summer Water transport toward the Chukchi Borderland in the Arctic Ocean

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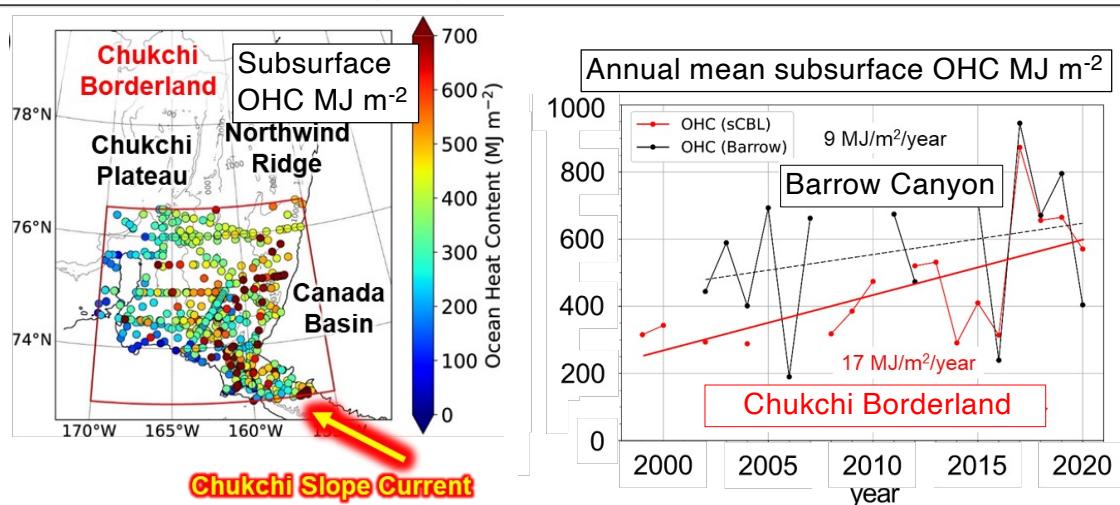


1. Introduction



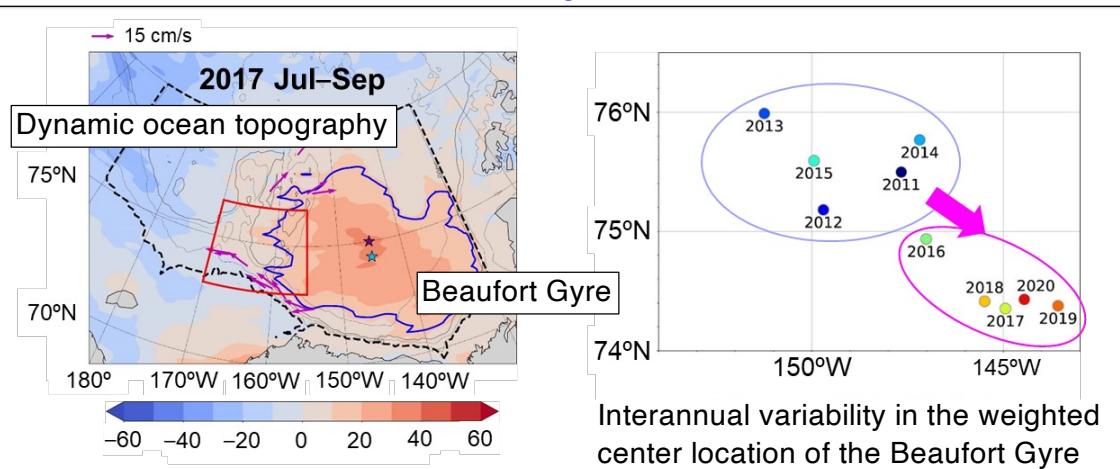
- A Recent rapid sea ice reduction in the Pacific sector of the Arctic Ocean is potentially associated with inflow of Pacific Summer Water (PSW) via the Bering Strait and Barrow Canyon (e.g., Woodgate et al., 2007).
- After passing through Barrow Canyon, a substantial amount of PSW is transported along the Chukchi Sea shelf slope (e.g., Muramatsu et al., 2021) and is expected to transport to the Chukchi Borderland.
- Here, we present the decadal variability in the subsurface Ocean Heat Content (OHC) using shipboard hydrographic data obtained by the R/V Mirai of JAMSTEC during 1999–2020.

2. Ocean Heat Content (OHC) in the Chukchi Borderland



A statistically significant decadal trend was observed in the subsurface OHC during 1999–2020, and associated with the transport of PSW from Barrow Canyon, where similar warming appeared.

3. Mechanism of subsurface warming in the Chukchi Borderland



In addition to OHC increase in the Barrow Canyon (Section 2), increased northwestward transport due to shift of Beaufort Gyre could contribute to the subsurface warming in the Chukchi Borderland.