

# Influence of Oceanic Heat Inflow to the Pacific Arctic Ocean on Sea Ice Extent : a Preliminary Diagnosis

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As it is uncertain that oceanic heat increase accelerates sea ice melting in the Arctic Ocean, the accurate diagnosis for the influence of oceanic heat inflow on the Arctic Ocean environmental change is required. In this study, we assess the influence of sea ice extent to oceanic heat inflow and river inflow in the Pacific Arctic Ocean (PAO) from 2011 to 2016 using the observed data. Significant influences of ocean heat inflow and freshwater would have important consequence not only for the melting ice but also water mass distribution in the PAO. The primary factor of the response of the ice melting in the PAO is examined using the Finite Volume Coastal Ocean Model (FVCOM) with the sea-ice module. The factors that influence on ocean heat inflow are temperature, salinity, volume transport from Bering Strait, river heat inflow from the Alaska continent, and solar radiation from the Northwest arctic ocean. The diagnostic results indicate that the factors influencing the variability of oceanic heat play an important role in melting ice and distributing the consequent water masses in the PAO.