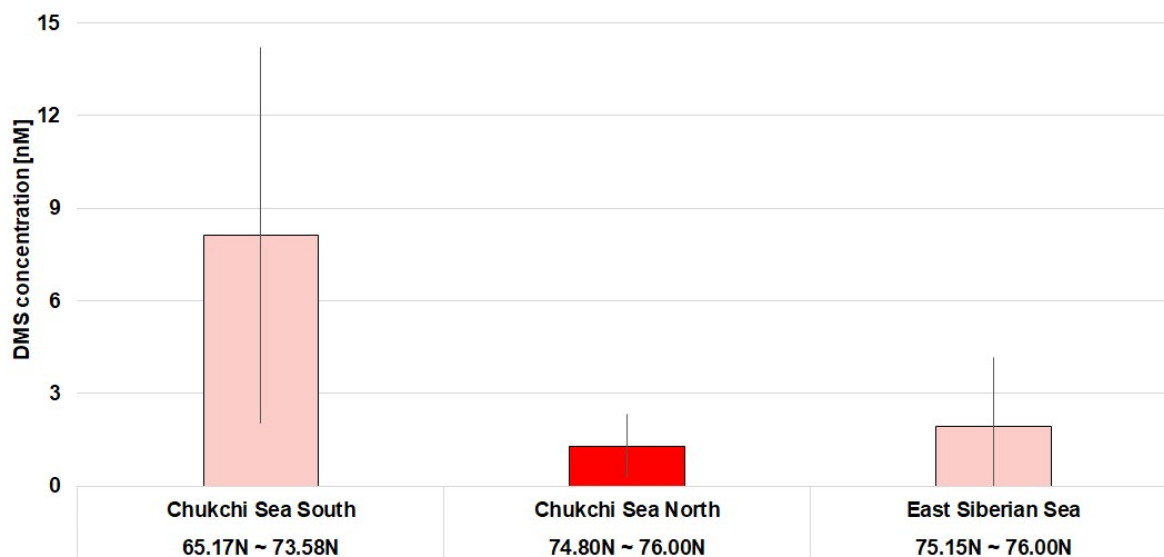


**Supplementary Figure 1.** Chemical and physical properties of each melt pond (\*which is visualizing the data of Table 1)

ARA07B (2016 Arctic cruise)



**Supplementary Figure 2.** Average DMS concentration in the surface water from underway measurements during Arctic cruise track in this study (Cruise tracks were shown in Figure 1). error bar indicate the 1- $\sigma$  uncertainty.