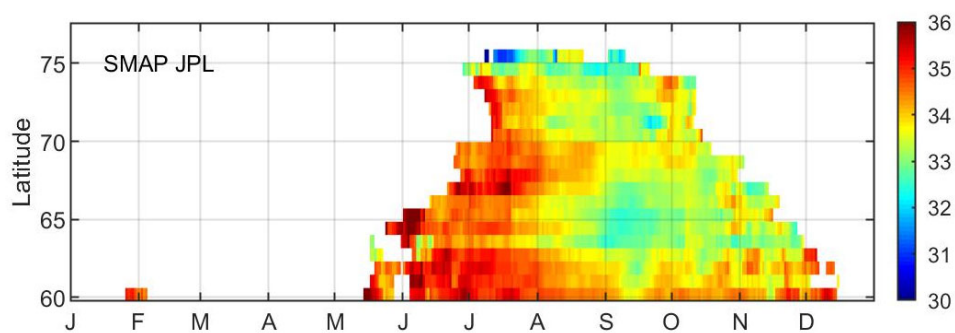
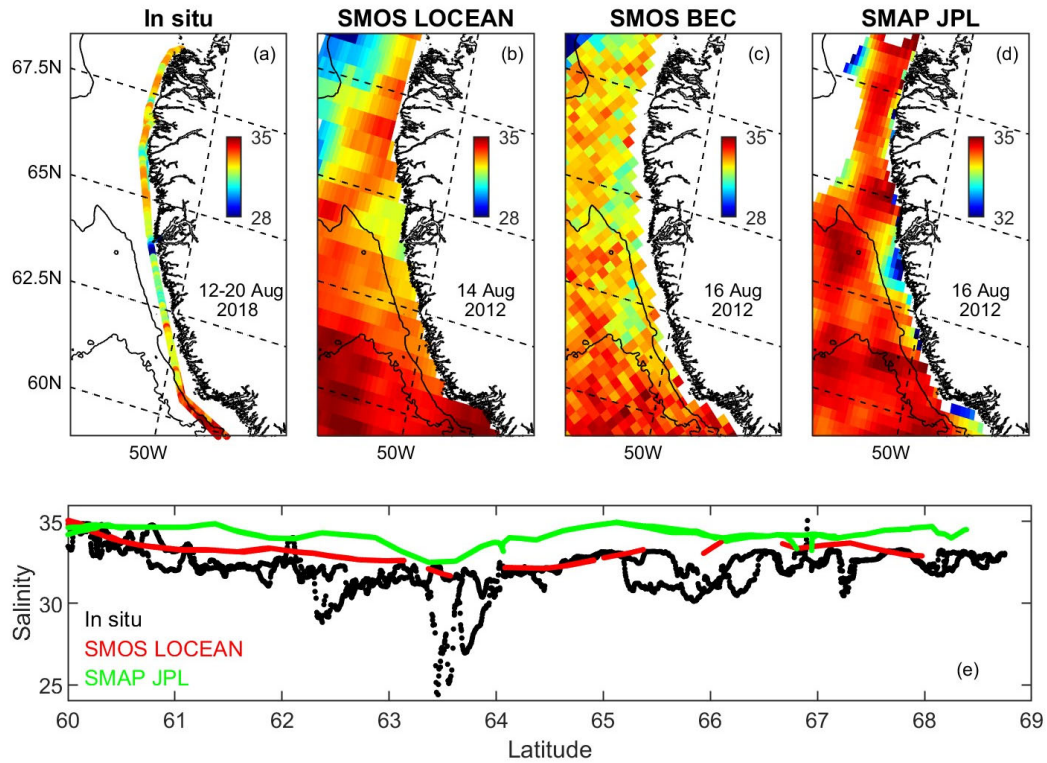


**Supplementary Figure S1** - Monthly surface salinity in the Labrador Sea and Baffin Bay for July (J), August (A), September (S) and October (O) based on SMAP JPL, considering only observations with ice fraction smaller than  $10^{-4}\%$ . Compare with Figure 1d, which considers observations with ice fraction smaller than 0.1%.



**Supplementary Figure S2** - Hovmöller diagram (month versus latitude) of surface salinity averaged within 60 km from the west Greenland coast based on SMAP JPL, considering only observations with ice fraction smaller than  $10^{-4}\%$ . Compare with Figure 2e, which considers observations with ice fraction smaller than 0.1%.



**Supplementary Figure S3** – Surface salinity off west Greenland in August 2018 based on (a) in situ thermosalinograph data, (b) SMOS LOCEAN, (c) SMOS BEC and (d) SMAP JPL (using only observations with ice fraction smaller than  $10^{-4}\%$ ). Note that the color bar in (d) is different than in (a-c) to reveal as much as possible of the spatial structure in each case. (e) Salinity from in situ data (black) and SMOS LOCEAN (red) and SMAP JPL (green) interpolated into the ship transect are also shown as a function of latitude. SMOS BEC is not shown in (e) because of the wider coastal gap in that data set.