EGU25-6782 Supplementary Material

Arctic Ocean inorganic carbon and acidification changes from 1994 to 2022 across the Chukchi Sea to the North Pole: A US contribution to the International Synoptic Arctic Survey Program

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Mendeleev Ridge 1994 and 2015 profiles and heatmap:

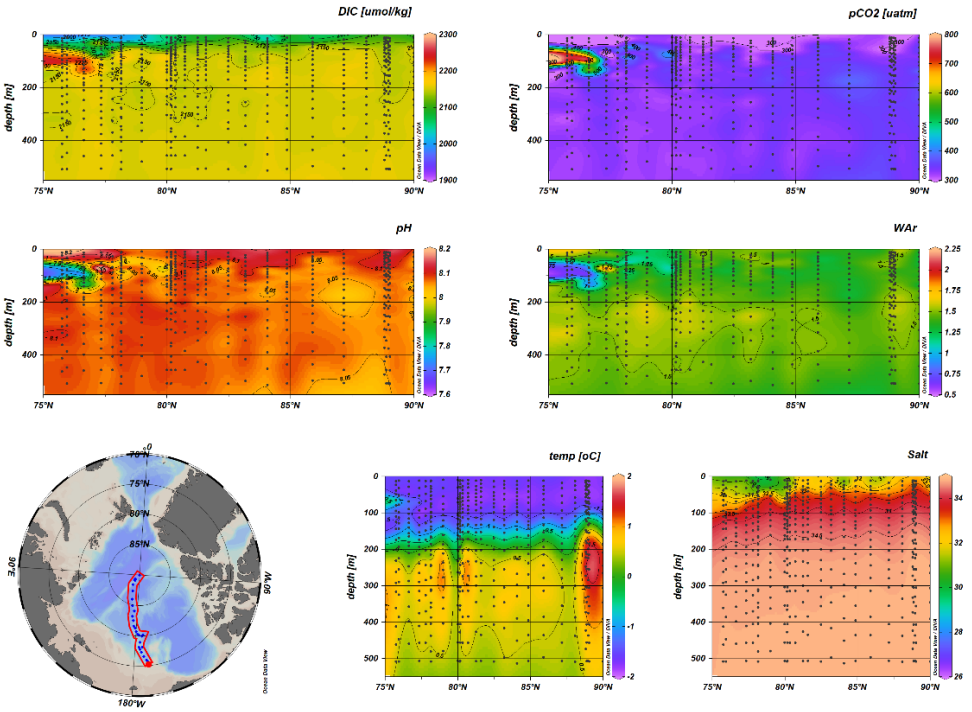


Figure 1. 1994, Arctic Ocean Survey section plots from Chukchi Shelf 70°N to 90°N, along the Mendeleev Ridge, surface to 550m depth for: (top-left) dissolved inorganic carbon, DIC (µmoles/kg); (top-right) pCO_2 (µatm); (middle-left) pH (total hydrogen scale); (middle-right) aragonite saturation state (W), (lower-left) station map, (lower-middle) temperature (°C); and, (lower-right) salinity.

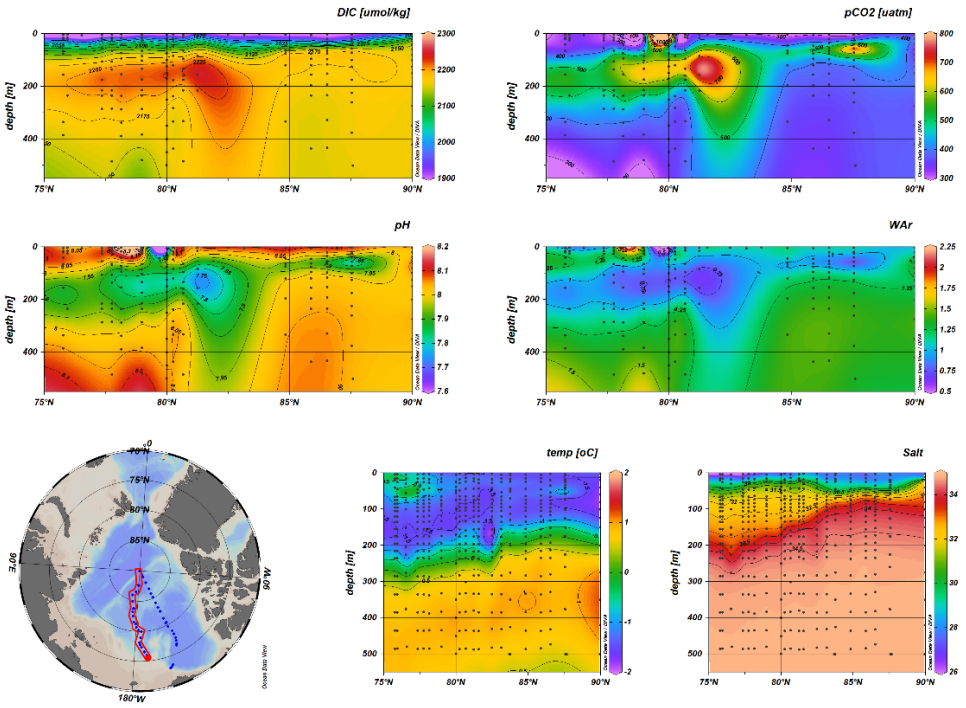
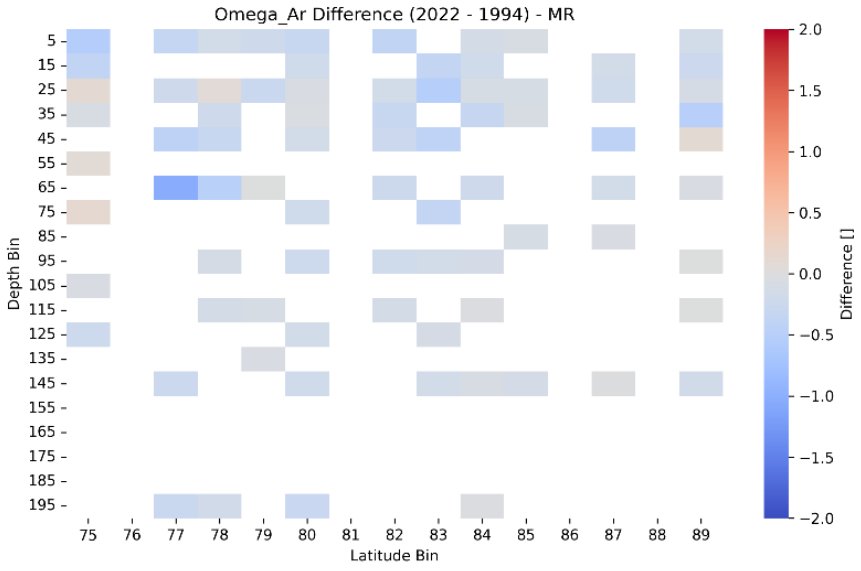


Figure 2. 2015, GEOTRACES section plots from Chukchi Shelf 70°N to 90°N, along the Mendeleev Ridge, surface to 550m depth for: (top-left) dissolved inorganic carbon, DIC (µmoles/kg); (top-right) pCO_2 (µatm); (middle-left) pH (total hydrogen scale); (middle-right) aragonite saturation state (W), (lower-left) station map, (lower-middle) temperature (°C); and, (lower-right) salinity.



Figures 3. Heatmap of depth binned (10 m) and latitude binned (1°) differences between 2022 and 1994 along the Mendeleev Ridge (MR) transect for aragonite saturation state.

Canada Basin 2005, 2015 and 2022 profiles:

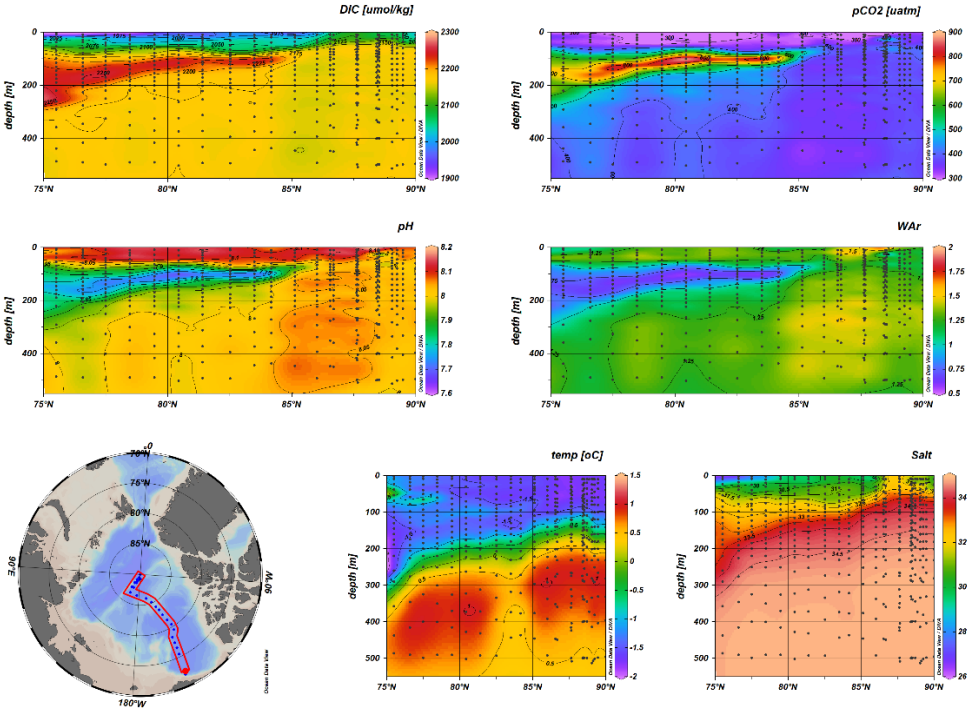


Figure 4. 2005, Beringia section plots from Chukchi Shelf 70°N to 90°N, across the Canada Basin, surface to 550m depth for: (top-left) dissolved inorganic carbon, DIC (µmoles/kg); (top-right) pCO_2 (µatm); (middle-left) pH (total hydrogen scale); (middle-right) aragonite saturation state (W), (lower-left) station map, (lower-middle) temperature (°C); and, (lower-right) salinity.

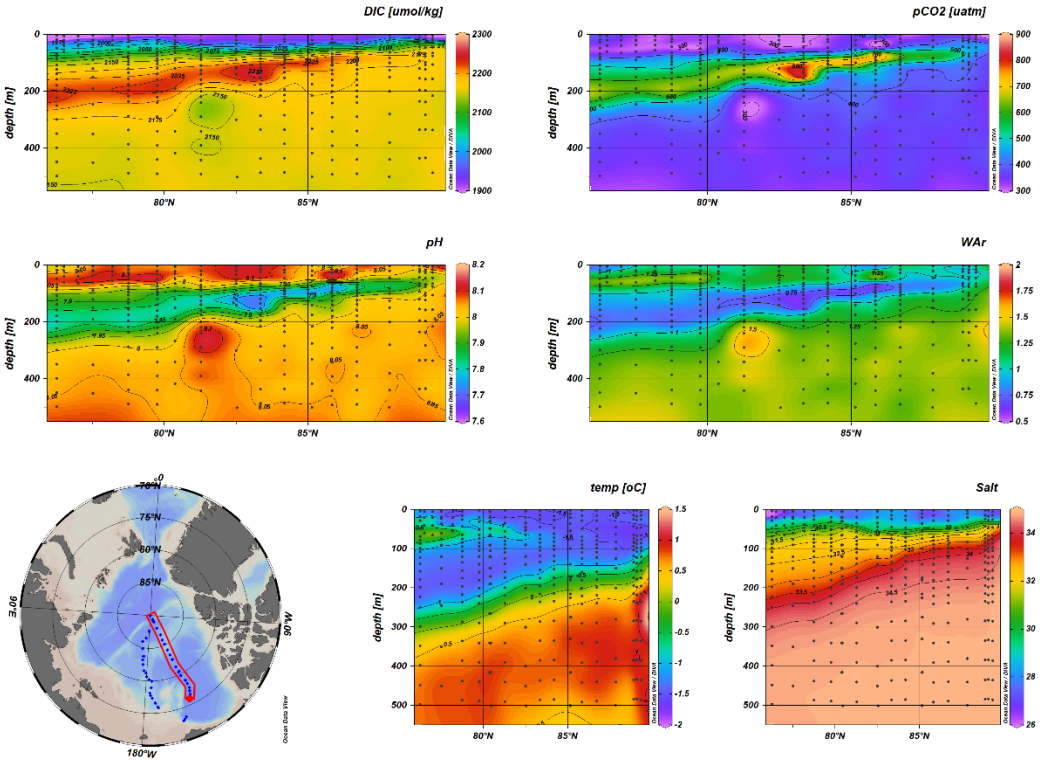


Figure 5. 2015, GEOTRACES section plots from Chukchi Shelf 70°N to 90°N, across the Canada Basin, surface to 550m depth for: (top-left) dissolved inorganic carbon, DIC (µmoles/kg); (top-right) pCO_2 (µatm); (middle-left) pH (total hydrogen scale); (middle-right) aragonite saturation state (W), (lower-left) station map, (lower-middle) temperature (°C); and, (lower-right) salinity.

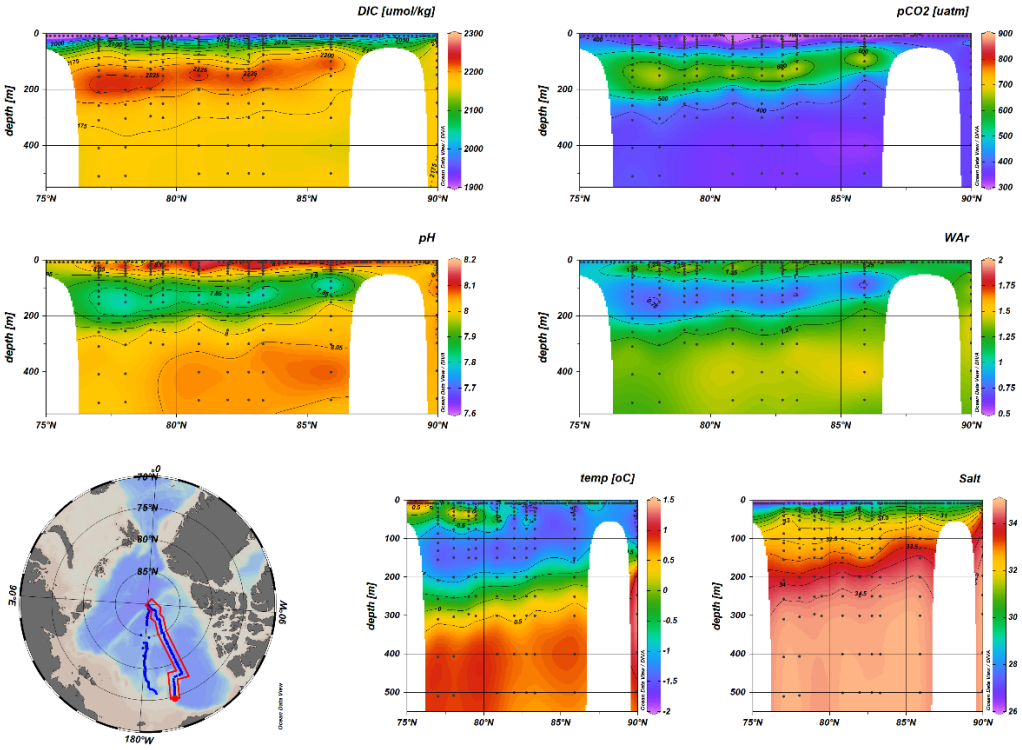


Figure 6. 2022, Synoptic Arctic Survey section plots from Chukchi Shelf 70°N to 90°N, across the Canada Basin, surface to 550m depth for: (top-left) dissolved inorganic carbon, DIC (µmoles/kg); (top-right) pCO_2 (µatm); (middle-left) pH (total hydrogen scale); (middle-right) aragonite saturation state (W), (lower-left) station map, (lower-middle) temperature (°C); and, (lower-right) salinity.

Chukchi Shelf, East Hanna Shoal, 2004, 2011 and 2022 profiles:

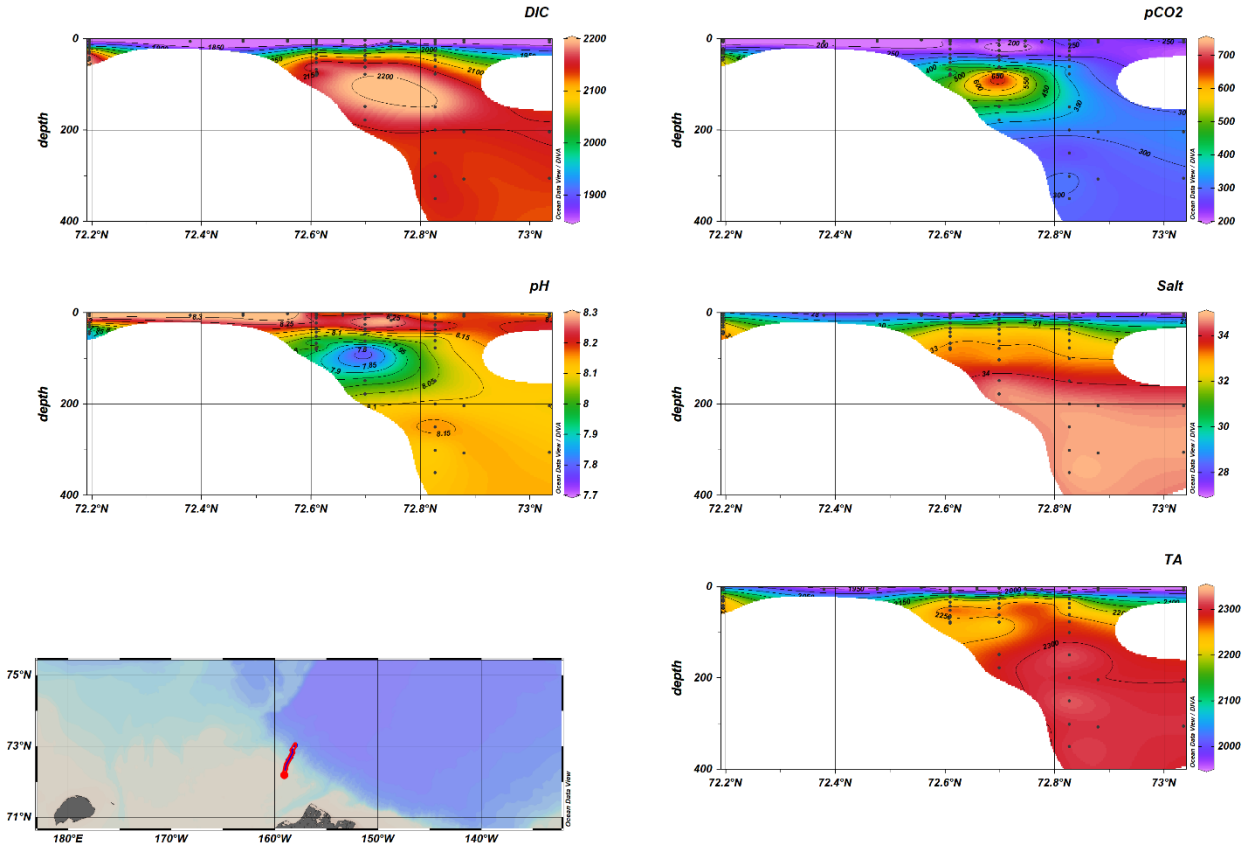


Figure 7. 2004 summer, SBI (Western Arctic Shelf-Basin Interactions) profiles along the East Hanna Shoal, surface to 400m depth for: (top-left) dissolved inorganic carbon, DIC (µmoles/kg); (top-right) pCO_2 (µatm); (middle-left) pH (total hydrogen scale); (middle-right) salinity, (lower-left) station map and, (lower-right) Total Alkalinity.

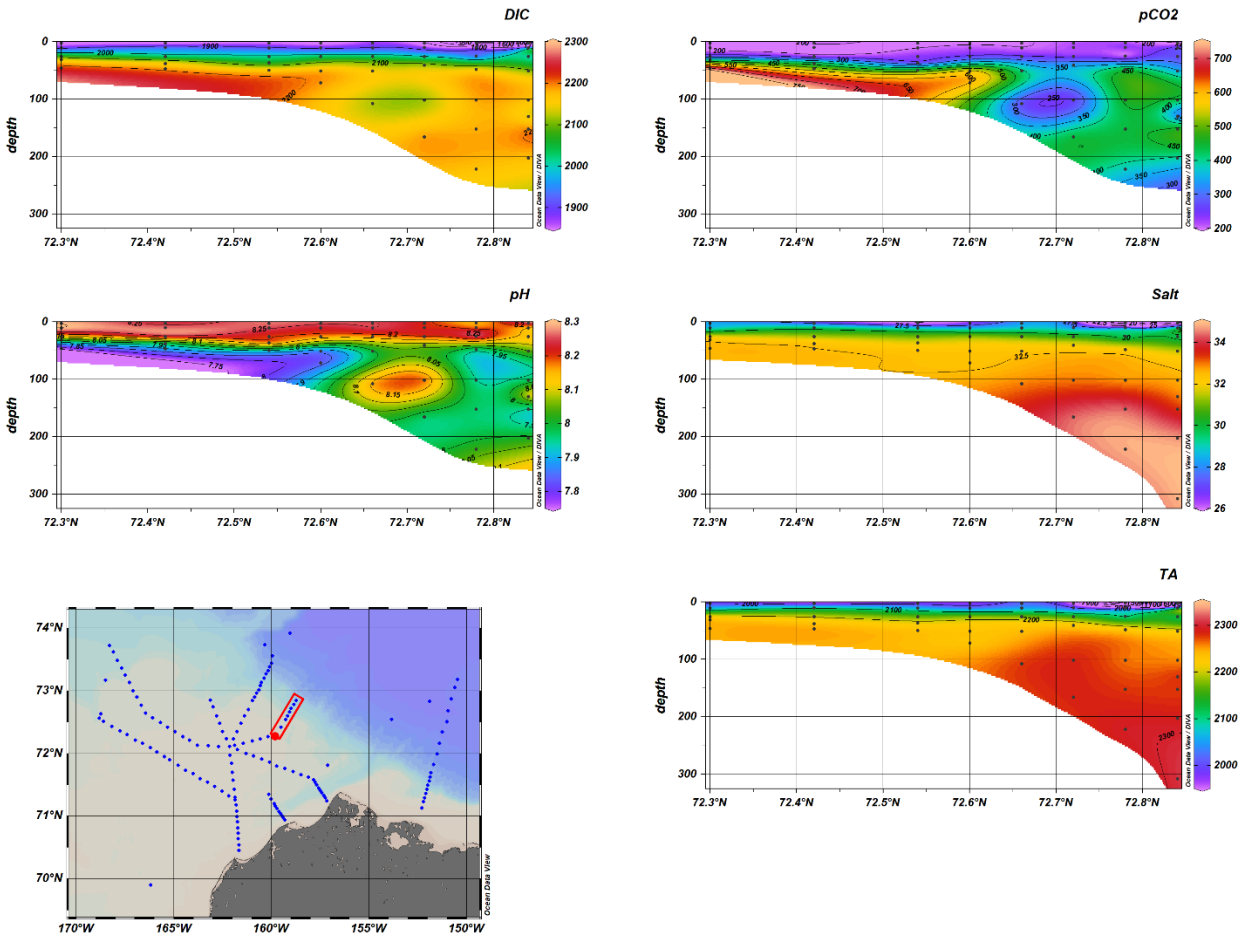


Figure 8. 2011 summer, ICESCAPE (**I**mpacts of **C**limate on the **E**co-**S**ystems and **C**hemistry of the **A**rctic **P**acific **E**nvironment) profiles along the East Hanna Shoal, surface to 300m depth for: (top-left) dissolved inorganic carbon, DIC (µmoles/kg); (top-right) pCO_2 (µatm); (middle-left) pH (total hydrogen scale); (middle-right) salinity, (lower-left) station map and, (lower-right) Total Alkalinity.

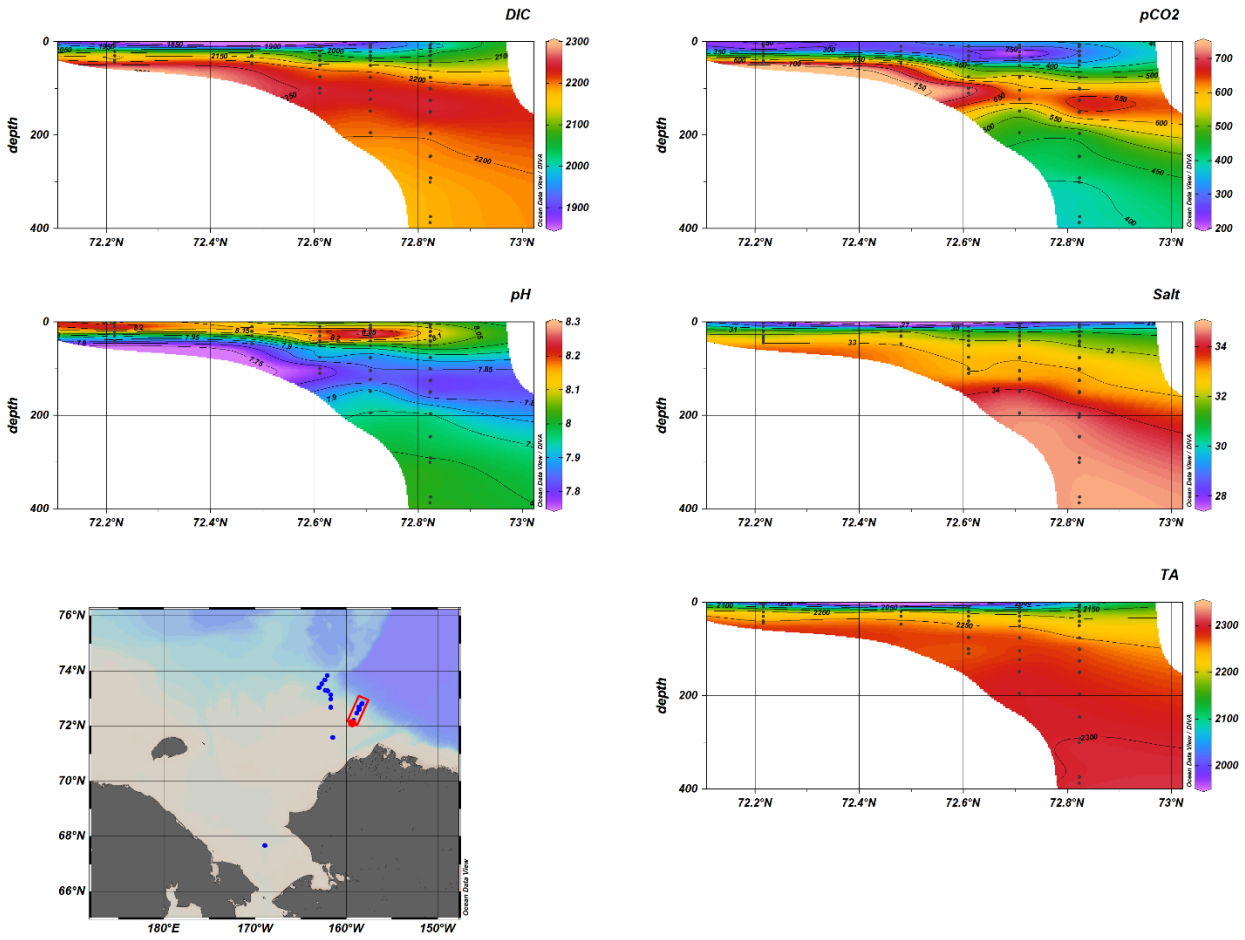


Figure 9. 2022 late summer, Synoptic Arctic Survey profiles along the East Hanna Shoal, surface to 400m depth for: (top-left) dissolved inorganic carbon, DIC (µmoles/kg); (top-right) pCO_2 (µatm); (middle-left) pH (total hydrogen scale); (middle-right) salinity, (lower-left) station map and, (lower-right) Total Alkalinity.