Supplementary ice core data

The supplementary data includes extra ice core data from cores taken before and after the black carbon is added for each run (1–4) with a different black carbon loading (0, 75, 150 and 300 ng g^{-1}). Salinity, temperature and density is measured for each core and brine salinity, density and brine and air volume are derived using equations by Cox and Weeks (1983). A photograph of each core is also shown.
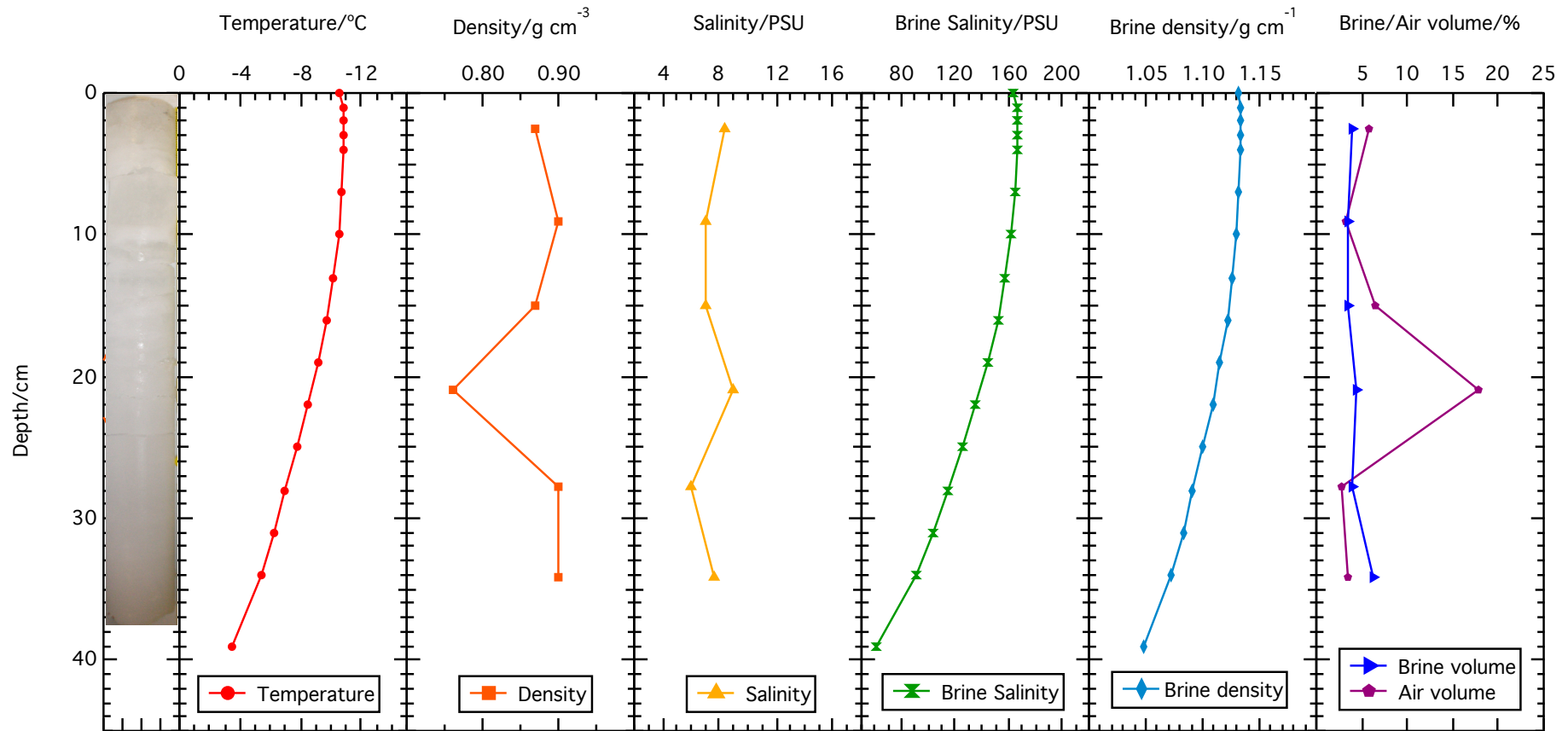
Figure 1 – **Run 1 before black carbon doped layer added** *Physical ice properties for bottom undoped ice layer, before black carbon doped layer added for run 1. Temperature, density and salinity are measured from core sections, while brine salinity, brine density and brine and air volume are derived from equations of Cox and Weeks (1983). Photo of the ice core is also shown*
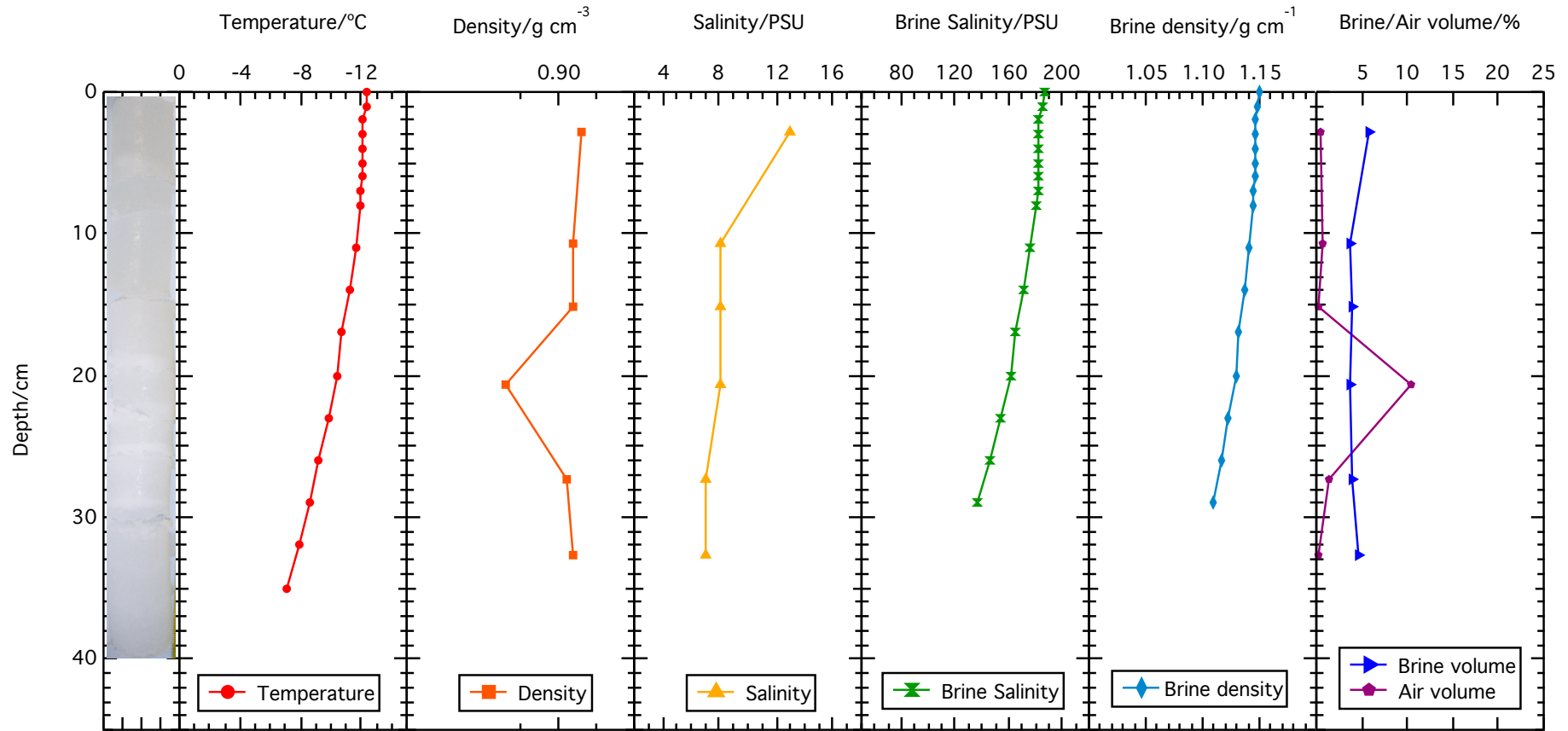
Figure 2 – **Run 1 after 0 ng g^{-1} black carbon doped layer added** *Physical ice properties for bottom undoped ice layer and additional 0 ng g^{-1} black carbon doped layer for run 1. Temperature, density and salinity are measured from core sections, while brine salinity, brine density and brine and air volume are derived from equations of Cox and Weeks (1983). Photo of the ice core is also shown*
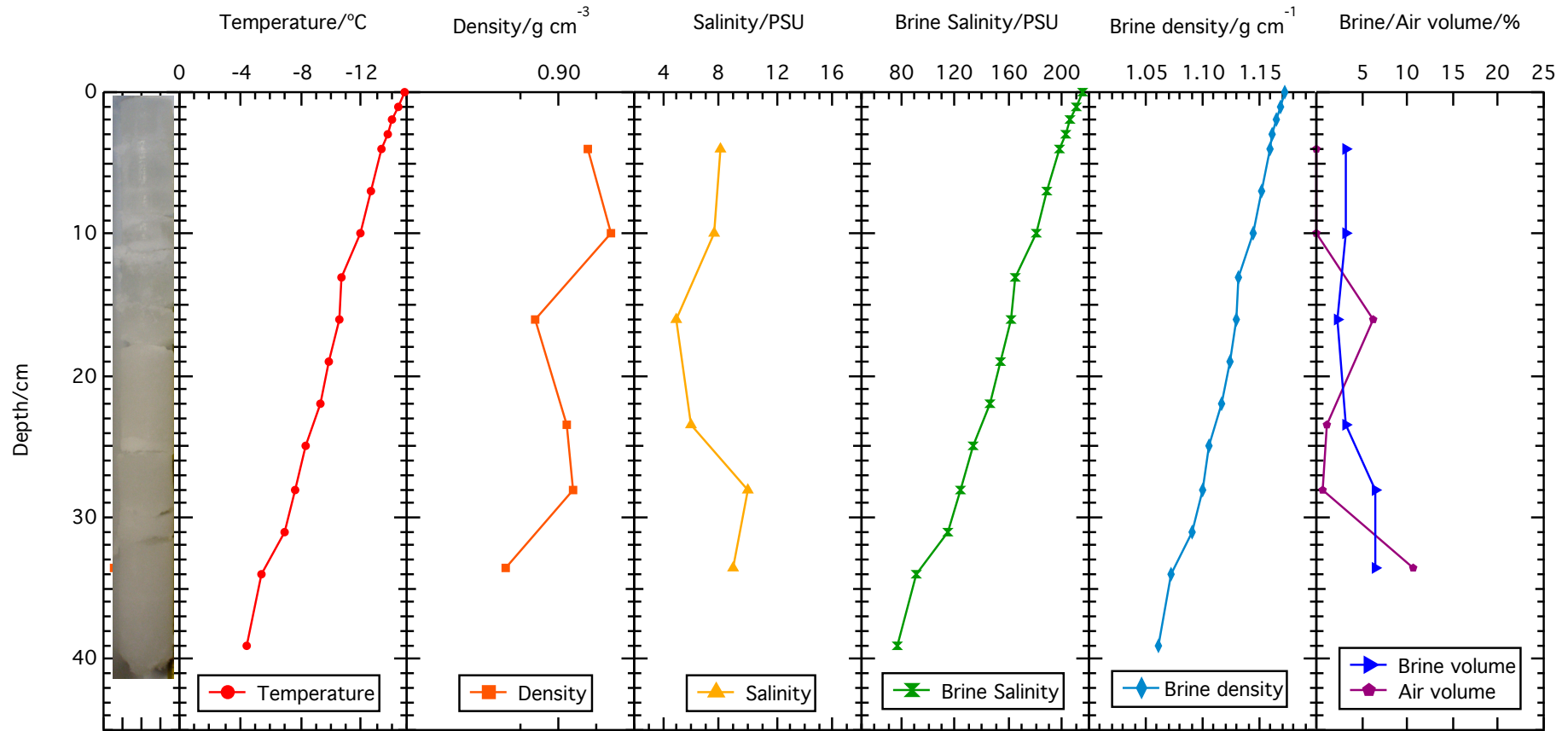
Figure 3 – **Run 2 before black carbon doped layer added** *Physical ice properties for bottom undoped ice layer, before black carbon doped layer added for run 2. Temperature, density and salinity are measured from core sections, while brine salinity, brine density and brine and air volume are derived from equations of Cox and Weeks (1983). Photo of the ice core is also shown*
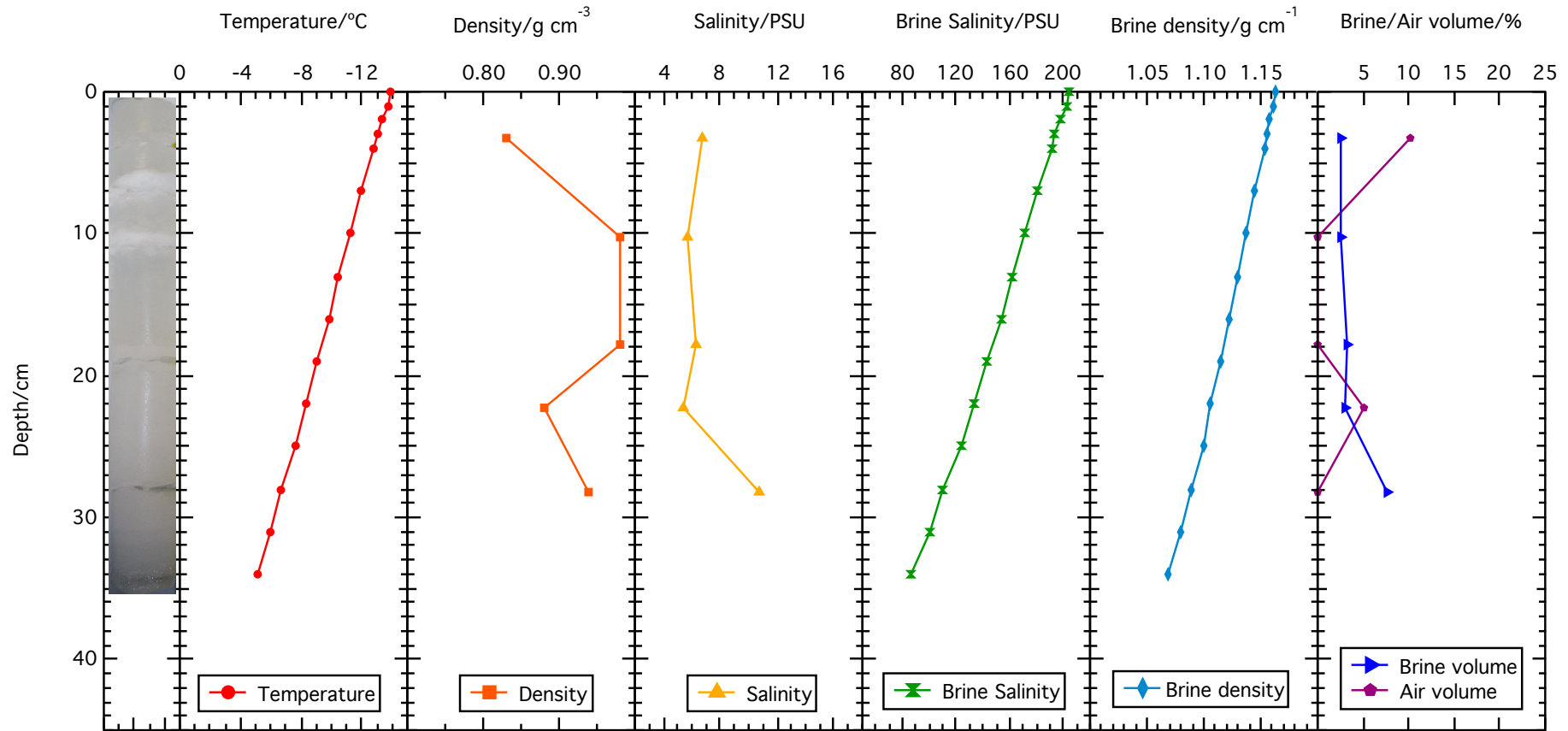
*Figure 4 – **Run 3 before black carbon doped layer added** Physical ice properties for bottom undoped ice layer, before black carbon doped layer added for run 3. Temperature, density and salinity are measured from core sections, while brine salinity, brine density and brine and air volume are derived from equations of Cox and Weeks (1983). Photo of the ice core is also shown*
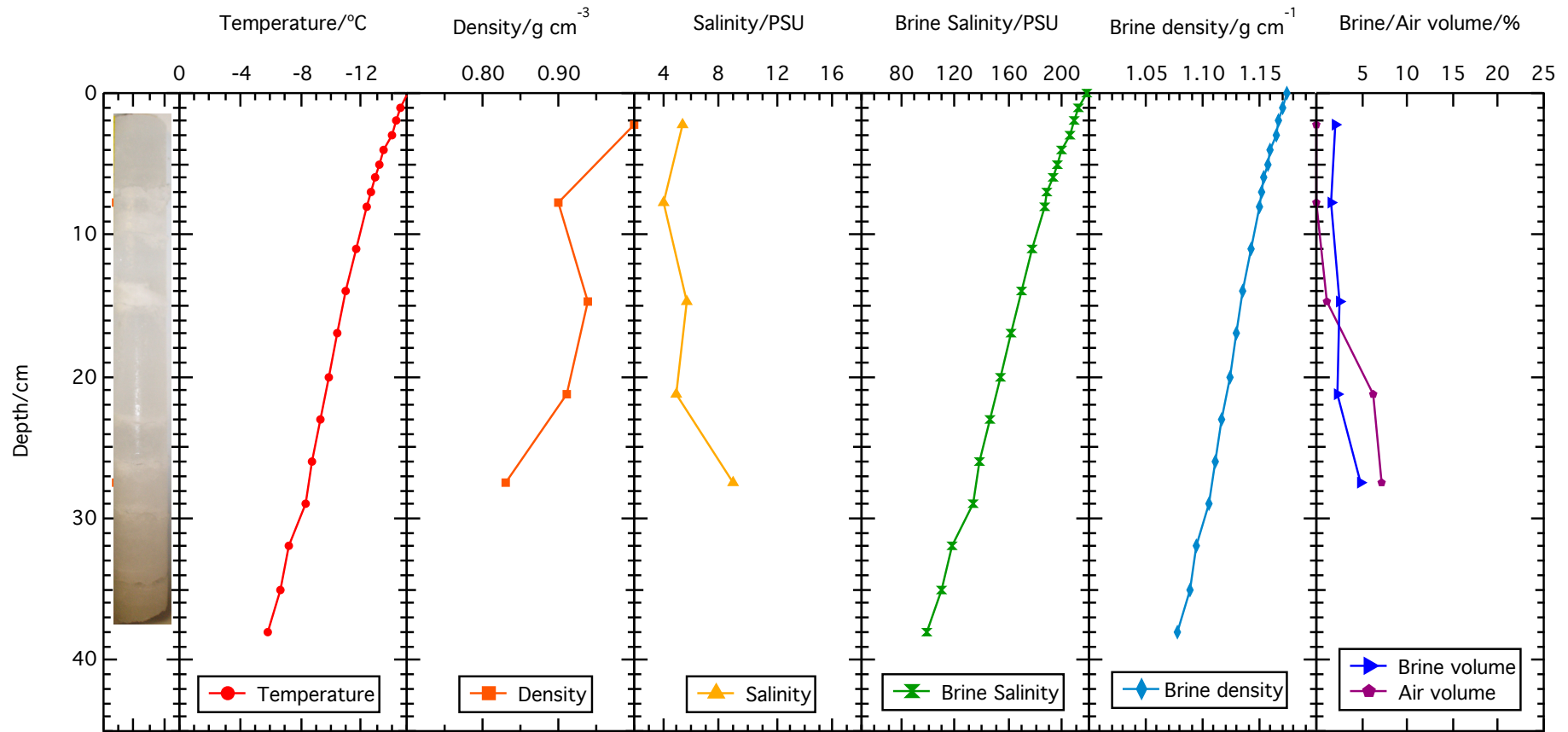
Figure 5 – **Run 3 after 150 ng g^{-1} black carbon doped layer added** *Physical ice properties for bottom undoped ice layer and additional 150 ng g^{-1} black carbon doped layer for run 3. Temperature, density and salinity are measured from core sections, while brine salinity, brine density and brine and air volume are derived from equations of Cox and Weeks (1983). Photo of the ice core is also shown*
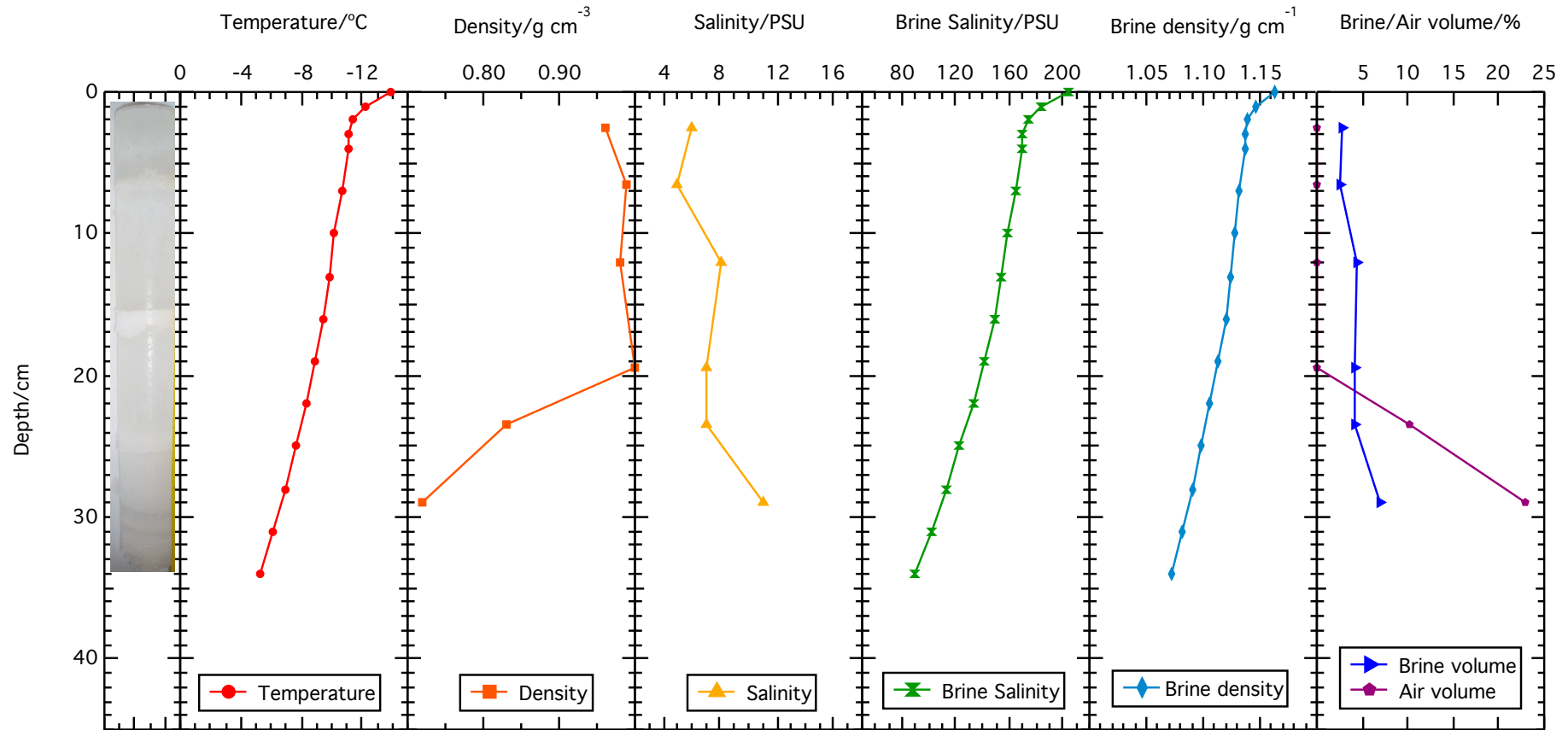
Figure 6 – **Run 4 before black carbon doped layer added** *Physical ice properties for bottom undoped ice layer, before black carbon doped layer added for run 4. Temperature, density and salinity are measured from core sections, while brine salinity, brine density and brine and air volume are derived from equations of Cox and Weeks (1983). Photo of the ice core is also shown*
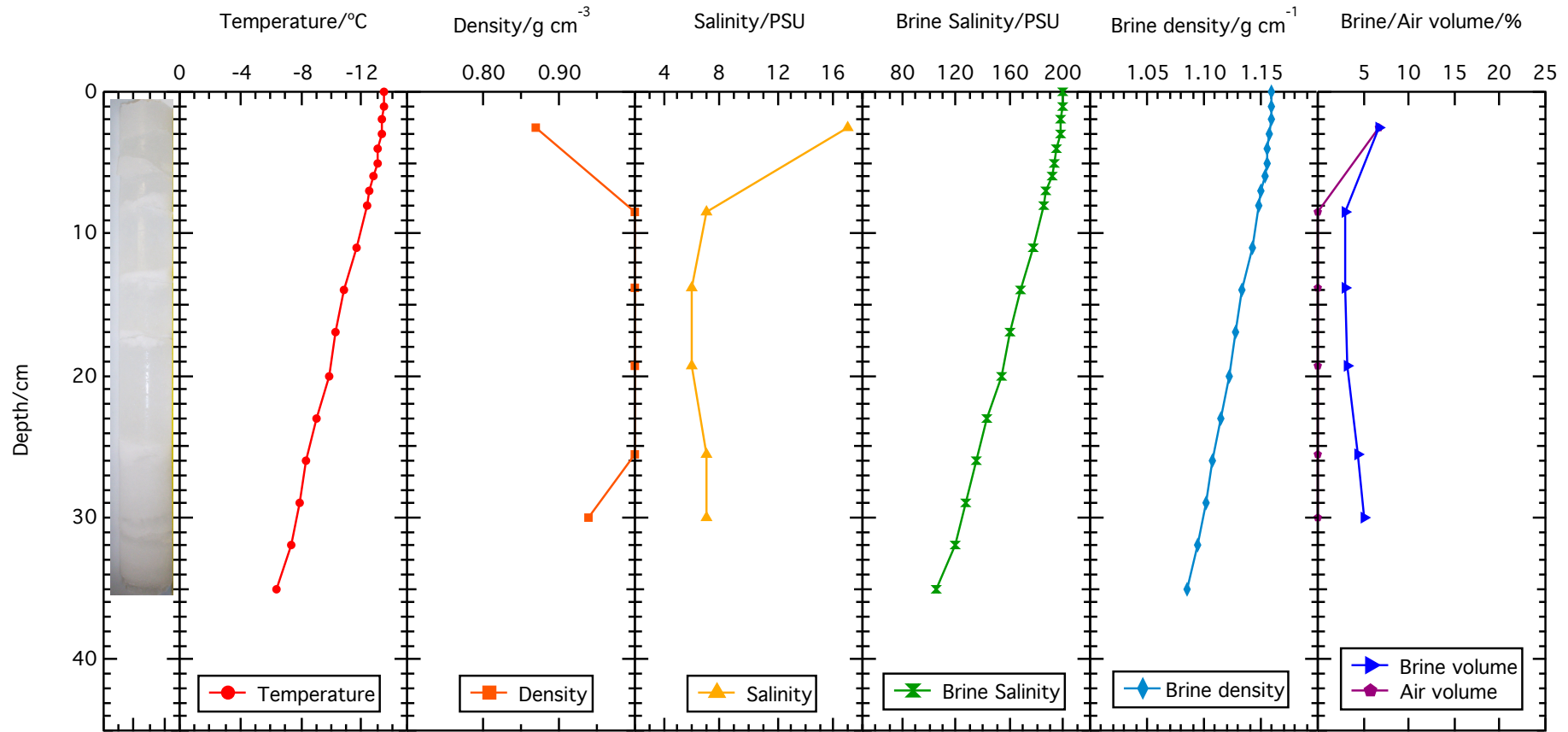
Figure 7 – **Run 4 after 300 ng g⁻¹ black carbon doped layer added** *Physical ice properties for bottom undoped ice layer and additional 300 ng g⁻¹ black carbon doped layer for run 4. Temperature, density and salinity are measured from core sections, while brine salinity, brine density and brine and air volume are derived from equations of Cox and Weeks (1983). Photo of the ice core is also shown*