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Simultaneous observations of velocity, temperature and salinity in the central Arctic by two ice-tethered platforms

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The Arctic is a region of importance for the circulation and climate relevant processes in the North Atlantic. The pathways and transformation of low-salinity Polar Surface water and Atlantic water in the central Arctic have so far largely been inferred from hydrographic data. In recent years, autonomous measurements by ice-tethered platforms have allowed us to survey remote regions of the Arctic over extended periods of time. We present an analysis of results from two platforms deployed in autumn, 2007, that have been drifting along the Lomonosov ridge: An Ice-Tethered Profiler (ITP) measuring ocean temperature and salinity in the upper $800m$ and a newly developed Ice-Tethered Acoustic Current Profiler (ITAC), measuring ocean velocity in the upper $500m$. To date, the drift track of the platform and the current velocity in most of the observed profiles are approximately oriented along the topography of the Lomonosov ridge.