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DIRECT OBSERVATIONS OF OCEAN VARIABILITY ACROSS THE ARCTIC MARGINAL ICE ZONE FROM AUTONOMOUS GLIDERS

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The trend of decreasing Arctic Ocean minimum sea-ice extent has been a topic of concern with far reaching effects. At least seasonally, there are good reasons to believe that Arctic Ocean will become a more dynamically active, with larger surface waves, stronger lateral gradients, and more intense internal wave activity. During the past summer, the marginal ice zone (MIZ) in the Canada Basin was studied extensively as part of a large program funded by the U.S. Office of Naval Research. We present initial results from several autonomous Seaglider deployments during summer 2014 in the Beaufort Sea. Gliders profiled in the ice-free region, across the MIZ, and under complete ice cover. The upper ocean vertical structure (temperature, salinity, chlorophyll), internal wave variability, turbulent mixing, and radiative warming as a function of distance from the ice edge. Very strong fronts and dramatic properties changes are observed at the ice edge. The autonomous glider measurements provide a unique perspective on the changing Arctic Ocean.