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Leads Experiment (LEADDEX) 1991, 1992

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Leads Experiment (LEADEx) 1991, 1992

Huts and equipment deployed at a freezing lead



The ONR sponsored Leads Experiment provided an opportunity to measure timeseries of microstructure properties in the oceanic boundary layer under freezing leads during field programs in the Arctic Ocean north of Alaska in 1991 and 1992. Measurements were made for several days at downcurrent sides of newly formed leads by deploying huts and instrumentation within helicopter range of a central camp. At each lead the automated Loose Tethered Microstructure Profiler (LMP) continuously profiled the water column from the surface to 75m depth, spanning the 35m deep mixed layer and upper pycnocline. The LMP is equipped with a microscale shear probe, fast fp07 thermistor, and a microconductivity cell, providing centimeter resolution estimates of salinity and temperature structure while resolving the thermal and turbulent kinetic energy gradient spectrum to produce estimates of thermal dissipation rates, and kinetic energy dissipation rates. These estimates have been successfully used with very high resolution thermal gradients to estimate heat fluxes and thermal diffusivities within both the mixed layer and pycnocline.

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References

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