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Intermittant intense turbulent mixing under ice in the Laptev Sea Continental Shelf

Yueng-Djern Lenn (1), Tom Rippeth (1), Chris P Old (1), Sheldon Bacon (2), Polyakov Igor (3), Ivanov Vladimir (4), and Holemann Jens ()

(1) Bangor University, School of Ocean Sciences, Anglesey, United Kingdom (t.p.rippeth@bangor.ac.uk), (2) National Oceanography Centre, Southampton, UK, (3) International Arctic Research Centre, University of Fairbanks, USA, (4) Scottish Associtation for Marine Science, UK, (5) Alfred Wegener Institute, Bremerhaven, Germany,

We will present new observations taken under ice on the Laptev Sea Continental Sea. The 12 hour time series of rapidly sampled temperature, salinity and velocity microstructure releveal a bottom boundary layer where the observed dissipation rate is elevated by about 2 orders of magnitude above background. We also observe a period ($\sim$ 2 hours) of intense dissipation within the pcynocline implying a very much elevated vertical heat flux at that time. We speculate that the observation of enhanced dissipation is consistent with a shear spiking mechanism observed in temperate shelf seas. The results highlight the intermittent nature of Arctic shelf sea mixing processes, and how they can impact on the transformation of Arctic Ocean water masses. The observations also clearly demonstrate that the absence or presence of sea ice profoundly affects the availability of near-inertial kinetic energy to drive vertical mixing on Arctic shelves.