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Time-space scales of hydrophysical variability in the Baltic and Black seas

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We use several hydrophysical field expeditions (performed in 2003-2006) data consisted of towed CTD probe and ADCP measurements for estimation of time frequency- horizontal spatial frequency spectra.

In Bornholm Deep and the Slupsk Furrow (Baltic Sea) we found the strongest 30 hr and 14 hr period variability constituents. The former is related to seiche wave of 28 km in length, the latter were inertial waves with two spatial bands: 15-25 km and 4-8 km. The less pronounced short-period 2-7 hr oscillations with related spatial range 1.5-6 êì were observed, as well.

The area under consideration in Black Sea is over shelf break off the East coast. Four distinct energetic time

intervals with maxima on 17, 8, 3, 1 hr were observed. We related the first two components to near-inertial oscillations: main and first-overtone modes. According wave lengths range was 7-14 km. We note, that these waves spread across isobaths. The last spectrum peak at 1 hr corresponded to wave lengths 4-8 km, the spreading direction being predominantly along isobaths. The intermediate 3 hr period oscillations had lengths 6-8 km and disposed in between inertial and short-period spatial ranges. Spreading directions of this constituent were diverse.