



MEZOPOLYGON-85 time-space scales of hydrophysical processes

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We present the results of the analysis of field in-situ measurements data, obtained in spring (April-May) 1985, in the Green Cape Deep basin, in the vicinity (approx. $1^\circ \times 1^\circ$ square) of polygon central point $21^\circ 00'N$, $37^\circ 00'W$. The data included 82 moorings currents and temperature time series, 8 CTD surveys, several long (~hundreds km) towed CTD sections. Space grid for moorings and hydrology stations was 10×10 miles. Near central polygon point, 7 moorings cluster had 5 miles grid distance.

Several sections of 4-dimensional spectrum, spectral invariants have been compared with the aim to estimate dominant hydrophysical processes in the time range 1 hr-1 month and space range 10-200 km. On the basis of moorings data at 200 m horizon, we obtained two-dimensional horizontal wave-numbers spectra at each of main distinguished peak constituents with periods 36 hr (inertial), 24 hr (diurnal), 12.4 hr (semi-diurnal), 6 hr (quarter-diurnal). By integrating of two-dimensional spatial spectral density onto the directions of available one-dimensional (towed) spectra, it became possible to confirm some conclusions about dominant processes in the area under consideration.

In particular, internal semi-diurnal tides, the strongest signal among other constituents, is consisted of several anisotropic mode $n = (3 \div 8)$ waves. We propose hypothesis for baroclinic tides and overtones formation and transformation over the rather rough and steep abyssal Green Cape Deep bottom relief.

Near lower boundary of thermocline internal waves can distort isotherms up to 50 m. Therefore, the identification of low-frequency variability (meso-scale eddies) on the

basis of ordinary hydrology maps may appear difficult.