



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° x 1° square) of polygon central point 21°00'N, 37°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 10x10 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.