

## Internal Waves and Mixing During SWAT

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During the Fall of 2000 an intensive survey was carried out in the mid-Atlantic Bight near 72.7W, 39.3N as part of the SWAT (Shallow Water Acoustic Technology) program. Here we use moored and in-situ observations from SWAT to characterize high-frequency internal waves and associated mixing observed during the experiment. A suite of instruments including moored ADCPs, temperature/salinity chains, a yo-yo CTD, and a Scanfish allow characterization of currents, waves, thermohaline structure, as well as estimation of Froude numbers, turbulent-overturn scales, and associated mixing.

Velocities are dominated by energetic internal tides with peak-to-peak velocity amplitudes of up to 40cm/s. Superimposed on this are large-amplitude internal waves with periods less than 0.5 hours and velocity amplitudes of about 20cm/s, which may have a significant effect on sound propagation in the coastal ocean. These high-frequency waves cause large deformations of the density field, and are sometimes associated with internal hydraulic jumps. Depth-averaged Froude numbers show typical values of 0.2 to 0.4, with periods in which Froude numbers close to 1 were observed, suggesting the waves may be an important contributor to local mixing.