'I'/I'13AS1!D STUDY OF BAROCLINIC 1< OSS}1}7 AND INERTIA-GRAVITY WAVI :S

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Using a recently developed technique for statistical analysis of non-gridded altimeter data, 3-d spatial-temporal autocorrelation functions and 2-d wavenumber spectra of SS11 variations are estimated for the global ocean. Separating SSH signal into a "slow" (quasi-geostrophic) and "fast" (gravity) modes, we derive quantitative information on long-wave processes. The main results include: globs] distribution of baroclinic Rossby (BR) waves (their amplitude and velocity vector) and of baroclinic inertia-gravity (BIG) waves. The wavenumber spectrum of the "fast" wave mode agrees with a recently developed theory of BIG wave turbulence. We point out that the ubiquitous BIG wave.s create some difficulties with respect to assimilating altimeter data into numerical models of ocean circulation. On the other hand, these waves offer exciting opportunities for new applications of altimeter data: their spectra contain information on the internal Rossby radius of deformation and other processes in the thermocline.