Abstract View

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Measurements of the Vertical Acceleration in Wind Waves

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ABSTRACT

Recent theoretical studies of the accelerations in regular gravity waves of finite steepness have shown striking differences between the Eulerian and the Lagrangian accelerations (those measured by fixed instruments or freely floating instruments, respectively). In the present paper, attention is directed to field observations of accelerations in random seas. Two sets of data are analyzed, representing Eulerian and Lagrangian measurements. The Eulerian accelerations are found to be notably asymmetric, with maximum downwards accelerators exceeding $-1.6g$. The Lagrangian acceleration histograms are narrower and more symmetric, in general. As might be expected, the acceleration variance is highly sensitive to the high-frequency cutoff, in both types of data.