

海洋音響トモグラフィーにおける次元性の比較と実海洋的要素 を取り込んだ3次元シミュレーション

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Abstract

Ocean Acoustic Tomography (OAT) allows the oceanic mesoscale variability to be monitored both widely and rapidly using sound propagation techniques. The systems of the OAT are classified into two types by the horizontal OAT transceiver deployments [i.e., linear: two-dimensional (2D) system; planar: three-dimensional (3-D) system]; however the difference between the performances of these two types of system has not been studied. Generally, the 3-D analyzing system has been regarded as the composite system of the 2-D ones. We evaluated the difference using the Geophysical Fluid Dynamics Laboratory (GFDL) model field as input. The simulations suggest that the advantage of applying 3-D analyzing system in estimating temperature field because of a high linear-independence of acoustic rays of the 3-D system.