Abstract View

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On the Accuracy of Heat Storage Computations

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ABSTRACT

Routinely taken oceanographic data from 55 temperature sections across the North Pacific Current along 158°W between Hawaii and Alaska are used to determine the accuracy of heat storage computations. Errors caused by the use of different instruments and their calibration are as large as those caused by environmental variability on short time and space scales and amount to $\sim 18\times10^7$ J m^{-2}, which is about 15% of the mean annual cycle in observed heat storage. Anomalies of heat storage and month-to-month changes of heat storage cannot be determined with any confidence, but over a complete heating or cooling season the observed changes in heat storage are systematically larger than the heat gain or loss during that season by about 50%, indicating a regular contribution by horizontal advection.