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A new estimate of interannual variability in upper ocean heat content in light of recently discovered in situ data biases

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As the planet warms, the oceans provide the primary reservoir for the storage of excess heat in the climate system. Recently, however, estimates of globally integrated ocean heat content have suffered from a number of biases in the in situ data network. These include problems with profiles from a small number of floats in the Argo array of profiling floats as well as a time-varying bias in the fall rate of expendable bathythermograph instruments.

A brief description of these two data problems and a technique for addressing them will be presented. In addition, a new estimate of the interannual variability in upper ocean heat content that accounts for these biases will be presented for the period from 1993 to the present. Finally, the implications of these results for the Earth's radiative balance and global sea level rise will be discussed.