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On properties of seawater defined by temperature, salinity, and pressure

by George Veronis

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EDITOR'S COMMENTARY

A classical, and highly productive, approach to studying hydrographic data in the ocean is to use T–S (Temperature–Salinity) analysis. This is a convenient methodology that allows definition of water mass types and quantification of mixing. Information about temperature, salinity and pressure (depth) can further be used to calculate the water's density.

The important insight of this contribution is the recognition that the same information used to calculate density can also be used to calculate a quantity, called τ here, that is orthogonal to density in T–S space. Using the traditional assumption that water preferentially moves along density surfaces, τ is then a remarkably useful tag for water parcels as they move and are mixed laterally.

It did not take long for the Veronis τ to receive the much catchier name "spiciness" (see Walter Munk's chapter "Internal waves and small-scale processes," in Warren and Wunsch [1981]) and the quantity has since become a standard tool in the analysis of ocean hydrographic data.

—Kenneth H. Brink

REFERENCE

Warren, B.A, and C. Wunsch, eds. 1981. The Evolution of Physical Oceanography. Cambridge: MIT Press.