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OXYANIONS

See METALLOIDS AND OXYANIONS

OXYGEN ISOTOPES IN THE OCEAN

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The oxygen isotope signature of sea water varies as a function of the processing of water in the oceanic cycle. The two chemical parameters, salinity and oxygen isotope ratio, are distinctive for various water types. The oxygen-18 to oxygen-16 ratio is

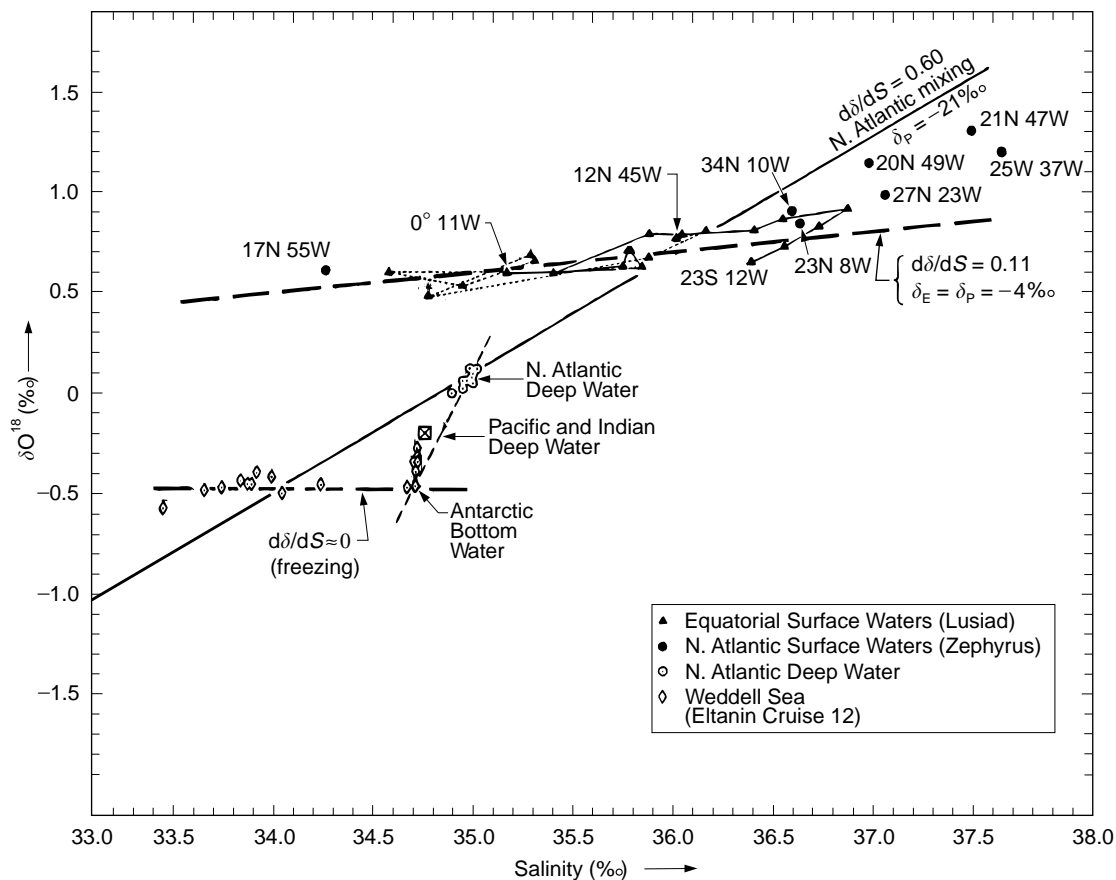


Figure 1 Oxygen-18–salinity relationships in Atlantic surface and deep waters. δ_E and δ_P refer to the isotopic composition of evaporating vapor and precipitation, respectively. (From Craig and Gordon, 1965.)

represented in comparison to a standard. The notation is δO^{18} which is defined as follows:

$$\left[\frac{^{18}O/^{16}O_{\text{sample}}}{^{18}O/^{16}O_{\text{standard}}} - 1 \right] \times 1000$$

Figure 1 shows the results for the world oceans from Craig and Gordon (1965). During the GEOSECS program the oxygen isotope ratios of seawater samples were also determined. The features resemble those in **Figure 1**. The GEOSECS data are available in the shore-based measurements volume of the GEOSECS Atlas (1987) published by the US National Science Foundation.

The tracking of fresh water from streams draining into the ocean at different latitudes has been used to study several coastal oceanic regimes. The work of Fairbanks (1982) is one of the earliest of these efforts.

See also

Cenozoic Climate – Oxygen Isotope Evidence. River Inputs.

Further Reading

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OYASHIO CURRENT

See **KUROSHIO AND OYASHIO CURRENTS**