A 30 second summary of the Rafter et al. (2013) paper in *JGR-Oceans*: Coupled nitrate nitrogen and oxygen isotopes and organic matter remineralization in the Southern and Pacific Oceans.

Bottom Line: Organic matter remineralization at depth returns nutrients to the ocean system. Here I demonstrate several ways to use nitrate $\delta^{15}N$ and $\delta^{18}O$ to observe these changes (and more).

The difference between nitrate $\delta^{15}N$ and $\delta^{18}O$ is a sensitive indicator of organic matter remineralization and I use this sensitivity to identify its influence throughout the Pacific.

For example, the linear relationship between nitrate $\delta^{15}N$ and $\delta^{18}O$ and "regenerated" nutrients (B) allows me to estimate the $\delta^{15}N$ of sinking organic matter. I call this a "pseudo-sediment trap".

Bonus: the increase in salinity as water moves around the S. Pacific (A) indicates the vertical ("isopycnal") mixing from my 2012 paper.