

A new method for the analysis of $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ of dissolved inorganic carbon

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The isotopic composition of carbon and oxygen in dissolved inorganic carbon (DIC) is traditionally measured using discrete samples of liquid that must be transported to the lab and subjected to lengthy preparation steps. These involve the quantitative precipitation and recovery of DIC as carbonate mineral (e.g., Gleason et al., 1969), or the degassing of CO_2 by acidification followed by vacuum purification (e.g., Games and Hayes, 1976) or lengthy $\text{CO}_2(\text{g})$ – $\text{CO}_2(\text{aq})$ isotopic equilibration in the headspace of a sealed sample container (e.g., Assayag et al., 2006). More recently, an online method has been developed that significantly reduces analysis time (Bass et al., 2012), but still requires introducing discrete aliquots in an evacuation chamber with ~15 minutes of equilibration per aliquot.

Here we present a new method for the analysis of $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ of dissolved inorganic carbon.