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## Preservation potential assessment of central Atlantic biogenic carbonate deposits using X-ray micro-computed tomography (XMCT)

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Dissolution of foraminiferal calcite above the lysocline can occur within the water column, at the sediment-water interface, and/or within the sediment column as a result of low in-situ carbonate ion concentrations. The dissolution of foraminiferal shells, which are widely used for paleoceanographic studies, has the potential to influence the weight and the chemical composition of the whole test. Their partial dissolution has been suggested to significantly bias their  $\delta^{18}\text{O}$  and  $\delta^{13}\text{C}$  signals, while the trace element ratios decrease as dissolution progresses. Despite the significant Atlantic importance on the climate system, and that of the carbonate system on atmospheric  $\text{CO}_2$  concentration, there have been only a few studies examining carbonate preservation along depth transects in the North and South Atlantic, and mostly by indirect means.

In order to assess the preservation potential of the central Atlantic basins, a set of 16 Atlantic surface sediment (core-top) samples along the mid-Atlantic Ridge was deployed. The samples span from approximately  $30^\circ\text{N}$  to  $30^\circ\text{S}$  and are situated along the mid-Atlantic Ridge from an average water depth of 3700 m, well above the 4200 m modern lysocline, with roughly equal bottom water  $\Delta\text{CO}_3^{2-}$  values ( $23 \pm 4 \mu\text{mol/kg}$ ). Typically 15 pre-weighed shells of three different planktonic foraminifera species, widely used in paleoceanographic research, were picked from each sample (300-355  $\mu\text{m}$ ) and scanned using a GE vtomex s high-resolution micro-CT scanner. The species under consideration, namely *Globigerinoides ruber* s.s. (white), *Trilobatus trilobus* and *Globorotalia truncatulinoides*, inhabit different water depths and are known to have different geochemistries and thus preservation potentials. The preliminary analysis of the tomographs suggests that although carbonate sediments from the eastern basins below from the south equatorial upwelling zone are more corroded their initial geochemistry is not greatly altered by dissolution.