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Correction of Coring Artefacts ('over-sampling'): An example using paired piston and gravity cores from the Rockall Trough, N. Atlantic

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Imperfect coring due to difficulties in retrieving sediments from the deep ocean (e.g. piston movement) may result in a distortion of age-depth relationships within the core. However the dimensional and stratigraphic integrity of sediments is essential for the investigation of depositional processes. We present a demonstration of the value of paired coring (i.e. both piston and gravity core) within palaeoceanographic investigations and describe an application that more closely approximates stratigraphic and dimensional 'truth'.

Via correlation of a piston and gravity core using magnetic susceptibility from the same location, a 'spliced' sedimentation rate for the site was created. An approximate threefold 'over-sampling' was discerned for the upper $\sim$10 m of the piston core not evident during core logging. However by using the 'spliced' sedimentation rate, the distortion to the piston core age-depth relationship could be corrected. This was particularly vital in regard to the calculation of ice-rafted debris (IRD) flux to the site through time.