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We plan to submit a collaborative proposal to measure dissolved and particulate concentrations of ^{230}Th, ^{232}Th and ^{231}Pa at each of the 22 full-depth stations planed for the N Atlantic transect.

We will generally require 5 liter samples of filtered seawater collected by the standard niskin rosette at each of the 24 depths planned for each full depth station. Selected bottles will be sampled in replicate, using smaller volumes, for quality control. Two berths are requested for this sampling. These people will be prepared to take responsibility for filtering water from the niskin rosette for other investigators as needed, and these people will be prepared to assist others in sampling from the niskin bottles.

We will request from the PIs responsible for in situ filtration an aliquot of filter providing particles from about 100 liters of water.

Processing and analysis of the samples will be divided among the participating labs.

All PIs will collaborate in interpreting the results. However, leadership in pursuit of specific scientific objectives consistent with the GEOTRACES Science Plan will be divided as follows:

1) Moran and Edwards will lead the interpretation of the impact of overturning circulation and lateral mixing on the distributions of dissolved ^{230}Th and ^{231}Pa.
2) Anderson will lead the interpretation of chemical scavenging and fractionation between Th and Pa, emphasizing the role of particle composition in regulating the fractionation. Mixing (Moran and Edwards), fractionation during scavenging (Anderson) and particle flux all affect the interpretation of sedimentary ^{231}Pa/^{230}Th ratios as tracers of boundary scavenging, and the PIs will work together on this topic.
3) Robinson will lead the interpretation of the distributions of dissolved and particulate ^{232}Th. ^{232}Th has been mentioned in many GEOTRACES planning documents as a potential tracer for mineral aerosol sources of TEIs, but it has never been investigated systematically in this context. The N Atlantic section will span a range of dust input signals, providing an excellent opportunity to investigate the potential of ^{232}Th as a dust tracer. In addition, recent work has raised questions concerning the biogeochemical cycle of dissolved ^{232}Th in the ocean, both about sources and about processes affecting scavenging and loss. These processes will be investigated systematically for the first time.