

As/P dynamics in the North Atlantic

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For the GEOTRACES North Atlantic Zonal Section Cruise we propose to study the biogeochemical dynamics between arsenic and phosphorus, in particular As “stress” in phosphate-depleted waters. We will make high resolution measurements (upper 500 m at all stations and from the towed fish in surface waters) of dissolved arsenic speciation (As III, V, and monomethyl and dimethyl As) combined with the existing hydrographic determinations of nanomolar phosphate (Management Proposal). These measurements will be complimented by determinations of phytoplankton pigments and species composition made by other PIs. In addition, we will conduct some photochemical oxidation experiments during the transects with deck-board incubations. Water volume requirements are 0.5 L per sample for all species and one berth will be needed to make the shipboard determinations (As species are not stable with storage). It should be noted that antimony speciation will be measured at the same time as its determination is part of our analytical methodology.