



## **Radium-226 and barium as tracers of water masses in the North Atlantic (GA01-GEOTRACES)**

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In this study, we report concentrations of radium-226 ( $^{226}\text{Ra}$ ,  $t_{1/2}=1602$  y) and barium determined along the GEOVIDE section conducted in the North Atlantic (May-July 2014; Portugal-Greenland-Canda) in the framework of the international GEOTRACES program. A high vertical resolution (up to 22 depths per station) was achieved by analyzing small volumes ( $\sim 10$  L) of seawater for  $^{226}\text{Ra}$  using a radon emanation technique. We will present the distribution of  $^{226}\text{Ra}$  activities and barium concentrations in contrasting biogeochemical regions of the North Atlantic (Iberian margin, West European Basin, Reykjanes Ridge, Irminger Sea, Greenland margin and Labrador Sea). These regions strongly differ in terms of boundary inputs, biogeochemistry and deep water formation. We observe a linear correlation between  $^{226}\text{Ra}$  and barium along the GEOVIDE section, which results from the dominantly conservative behavior of the two tracers. However, deviations from the linear correlation between  $^{226}\text{Ra}$  and Ba are found in several places. The potential causes for such deviations are investigated. Optimum multi-parameter (OMP) analysis was thus used to distinguish the relative importance of physical transport (i.e., water mass mixing) from non-conservative processes (sedimentary, river or hydrothermal inputs; uptake by particles) on the  $^{226}\text{Ra}$  and Ba distribution in the North Atlantic.