GEOTRACES Arctic Program

Statement of Interest: Stable isotopes of water ($H_2{}^{18}O/H_2{}^{16}O$ ratio and $^2H/H$ ratio)

P. Schlosser, Bob Newton, Ronny Friedrich, Bill Smethie

We are interested in measuring stable isotopes of seawater and sea ice along the Arctic GEOTRACES cruise track(s). Buoyancy gradients due to the freshwater distribution dominate both the stability of the water column and the prominent surface currents in the Arctic. Stable isotopes can be used to determine the provenance of freshwater, and thus are critical in understanding the underlying dynamics. Stable isotope data will also be important in estimating provenance of other dissolved or suspended trace elements that will be measured during the cruise(s). Samples will be collected in 50 ml glass bottles and the sampling can be performed in the context of other tracer programs, i.e., we do not need a dedicated person for this sampling program. Data will be measured on a Picarro instrument on shore. If desired, the measurements could be performed on board. The stable isotope measurements will be combined with hydrographic and nutrient measurements to determine freshwater components and sources.