Presence of ^{236}U and ^{233}U in the Canada Basin from the US GEOTRACES expedition in 2015

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Over the past few years, ^{236}U ($T_{1/2}$=23.4 My) has been well established as a new oceanographic tracer. Combining the global fallout (GF) signal with the regional and point-like releases associated to the European nuclear fuel reprocessing plants (NRP), key information on the timescales of regional ocean circulation of Atlantic Waters into the Arctic Ocean (AO) has been gained.

In this work, we present results from the GEOTRACES US Arctic expedition GN01 in 2015. The main aim of the study is the determination of ^{236}U in a section through the Canada Basin. Results will be combined to the complementary section across the Eurasian Basin, resulting in the large-scale distribution of ^{236}U in the Arctic Ocean. In addition, the first results of ^{233}U ($T_{1/2}$=0.159 My) as a complementary tracer of water masses in the Arctic Ocean will be discussed,. The combination of these tracers can provide additional information on the source apportionment of anthropogenic U in the Arctic Ocean.

First results of $^{236}U/^{238}U$ show an increasing trend from the Bering Strait ($<1x10^{-9}$) to the Makarov basin ($>2x10^{-9}$). The opposite behaviour is observed in the case of the $^{233}U/^{236}U$ ratio, which descreases from $1.5x10^{-2}$ at the Pacific-Arctic gateway to $0.7x10^{-2}$ at the 80-90º latitude band. Both ratios show the influence of the Atlantic water inflow, carrying the ^{236}U signal from NRP.

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