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Iodine isotopes species in surface water along the eastern North Atlantic

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Concentrations and species of iodine isotopes (^{127}I and ^{129}I) provide vital information about iodine geochemistry and water circulation patterns in oceans. Extensive investigations of anthropogeic ^{129}I have been focused on the Arctic Ocean and the Nordic Seas as they represent natural pathways of water masses that return to the North Atlantic. Levels of anthropogenic ^{129}I in the Atlantic Ocean are, however, still unknown. We here present first data on ^{127}I and ^{129}I as well as their species (iodide and iodate) in a surface water transect, collected in November 2010, along the eastern North Atlantic between 30-50˚N. The results show average ^{129}I concentration of 0.69×10^{8} atoms/L with occurrence of peaks (reaching up to 12.67×10^{8} atoms/L). The sources of the peaks are attributed to ^{129}I transport from the English Channel and Irish Sea, as well as to Mediterranean outflows that run down in the Gulf of Cadiz. Species analysis reveals that iodate is predominant in the analyzed waters for both ^{127}I and ^{129}I. Despite that the Iodide/iodate of ^{127}I shows rather constant values, the species ratio for ^{129}I seems to vary in response to source and residence time in the water body.