



The origin of methylmercury in open Mediterranean waters

Cossa, Daniel, Bernard Averty, Nicola Pirrone

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ABSTRACT: We present high-resolution vertical profiles of methylated mercury (MeHgT = monomethylmercury + dimethylmercury) concentrations in the water column of the open and marginal areas of the Mediterranean Sea. MeHgT concentrations ranged from $<0.015 \text{ pmol L}^{-1}$ to $0.430 \text{ pmol L}^{-1}$ ($n = 130$), with maximal concentrations occurring within the maxima of oxygen consumption. Within the most biologically active zone (0-600 m), the MeHgT vertical profiles exhibited a nutrient-like pattern. The MeHgT vs. phosphate relationships were highly significant ($p < 0.001$), whichever the station. We argue that most of the MeHgT in the water column originates from in situ methylation of inorganic Hg^{II} associated with the regeneration of the organic matter. The demethylation of MeHgT as water ages seems responsible for the MeHgT distribution in deep waters. The influences of the methylmercury inputs from the atmosphere, rivers, and coastal or abyssal sediments appear to be locally restricted.

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