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### Implication of mercury contaminations on biogeochemical processes in anoxic sediments of a strongly polluted site

Mercury is a specific and ubiquitous element in the environment, it's considered as a global pollutant because of its longrange atmospheric transport and its complex biogeochemical cycle. Mercury is among the most hazardous environmental pollutants, given by its organic form, methylmercury (MeHg or CH<sub>3</sub>Hg). This form is the most toxic species of mercury, because of its bioaccumulative character in living organisms throughout the food web. In natural waters, mercury species are present at very low concentrations. For this reason, most analytical techniques do not achieve accurate direct measurement of Hg or MeHg, which necessitates preconcentration to meet their limit of detection. Part of this work includes some analytical development methods and also includes a field study on the distribution and biogeochemical behavior of mercury in Rivers of the Deûle and Lys (Northern France). The results have showed high concentrations of total mercury (HgT) in the Deûle contaminated by a former smelter "Metaleurop". The concentrations of HgT measured in the Lys are much lower. Although the Deûle sediments are highly burdened with HgT as compared to the Lys sediments, much higher percentage of methylmercury is found in Lys River. Suspended particles are the major Hg carrier phase and transporters of Hg pollution from the Deûle to the Lys River. Despite the fact that the former Metaleurop smelter is closed for almost a decade, mercury levels are still high in the Deûle, creating an Hg hotspot for mercury pollution to surrounding environments carrying Hg hundred kilometers downstream the river reaching the North sea.

#### **Biography**

Baghdad Ouddane has obtained a PhD in Environmental Chemistry in 1990 and a HDR (Higher Degree by Research) in 1997 at Lille 1 University. He is a Lecturer (1992-2003) and Full Professor at Lille 1 University since 2003. He is the Head of the Master "Water Treatment" in Lille 1 University. He has published more than 110 papers in reputed Environmental Journals and more than 120 communications in national and international conferences and is a co-author of 4 books (two on popular science). He is a referee in several international journals in the field of environment.

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