Environmental Seminar Series

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Building bridges between biogeochemistry and microbial ecology to understand the fate of pollutants in aquatic ecosystems: the case of mercury

Date

11:30 am

June 6th 2018

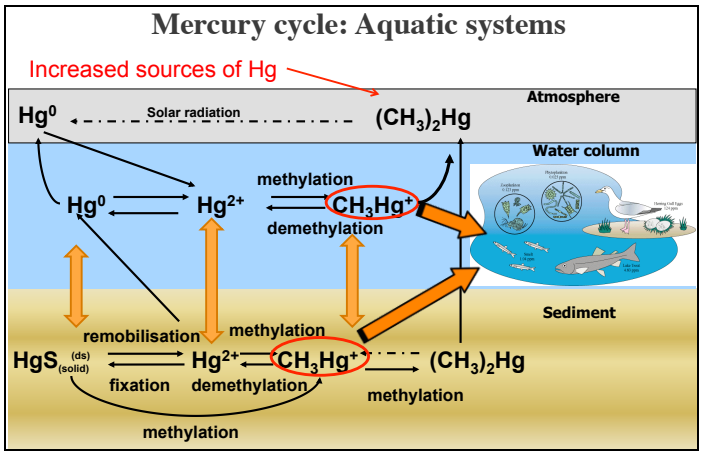
Location

Sala d'actes

Institute of Environmental Assessment and Water Research (IDAEA-CSIC)

C/Jordi Girona 18-26, 08034 Barcelona

Abstract



Mercury (Hg) is considered as a priority hazardous substance because it damages the central nervous system in severely exposed humans. Aquatic ecosystems are particularly vulnerable to Hg releases, as its methylated form (monomethylmercury, MeHg) accumulates in organisms and magnifies in aquatic food webs. Hg pollution is of such concern that about 130 countries signed the Minamata Convention to reduce Hg emissions and to protect human health and the environment from its adverse effects. Understanding the biogeochemical factors controlling the fate of Hg is thus crucial to determine whether the reduction of Hg emissions might translate into decreases in Hg in aquatic systems and to predict future Hg and methylmercury concentrations in the environment and biota. During my presentation I will talk about the impact of a Waste Water Treatments Plants (WWTPs) in a lake ecosystem highlighting that sediments impacted by WWTP discharges are indeed local hot-spots for MeHg formation due to the combined inputs of i) Hg, ii) organic matter and iii) iron. I will end my presentation showing how these particular geochemical conditions modified local microbial communities towards a Hg methylating microbial population dominated by Geobacteraceae.