

## **Microbial iron reduction in methanic sediments**

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In many aquatic sediments significant iron reduction has been observed far below its expected traditional depth, in the deep methanic zone, sometimes accompanied by methane decrease. Using multi methods we have investigated this reduction of iron in sediment diffusive profiles of Lake Kinneret (Israel) and the Southern Eastern (SE) Mediterranean continental shelf. The results show that in both sites the reactivation of iron oxides and their reduction in the methanic zone is microbial and linked to methane. In the lake sediments it is coupled to anaerobic oxidation of methane (AOM), and involves methanogens. In the continental shelf the reactivation and reduction in shallow sediments occurs even in these extreme oligotrophic conditions, probably due to upward fluxes of methane and intensive sulfate driven AOM that supplies substrate for deeper iron reduction.