The temporal and spatial variations of N_2O saturations in a eutrophic lake

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Much of the N_2O emitted from aquatic ecosystems is anthropogenically derived [1]. However, there remains considerable uncertainty in the magnitude of anthropogenic N_2O emitted from aquatic environments and how N_2O emissions respond to increasing loads of anthropogenic N and eutrophication in general. In this study, N_2O saturations were examined in the ecologically heterogeneous, eutrophic lake, Lake Taihu, in eastern China. I found that anthropogenically-enhanced inorganic nitrogen N inputs act as a limited primary control on the spatial distribution of N_2O saturations in heavily eutrophied parts of the lake only and that overall, lake N_2O production and emission are not raised as significantly as expected due to high N input [2]. A distinct diurnal pattern of N_2O saturations is displayed in July, which is controlled by biogeochemical processes [3]. While large-scale changes (~25-fold) in N_2O fluxes in Lake Taihu are a function of variable N loading, biogeochemical processes concerning O_2 and N transformation at the sediment-water interface have significant (~twofold) impacts on the regulation of N_2O production over very short time scales.

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The dissolving and driving process in Qarhan salt lake, China

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Qarhan salt lake is located in Qaidam Basin, Qinghai Province, China. There are about 3 million tons of solid potassium resources in Qarhan salt lake[1]. About half of the solid resources are of low grade. We can't exploit the low grade resource directly.

The solid potassium can be dissolved and transferred to liquid state by mixed with solution in low potassium concentration. We use water from Seniehu lake as the solution to carry on the research.The experiment area is 1 km^2. 35 monitoring wells are set up in order to obtain data of the saline water level and composition. There is a recharge trench on one side of the experiment area and a drainage thench on the other side. The low potassium solution comes into the experiment area from the recharge trench. During the flowing process, the concentration of potassium resolution becomes high. In the end, the high potassium solution flows out of the experiment area through the drainage trench.

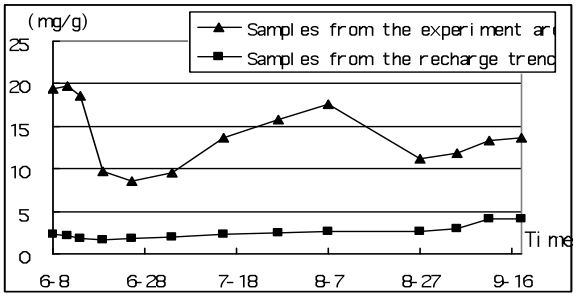

Figure 1: Potassium concentration duration curve

The result shows that solution with low potassium concentration can essily dissolve the solid potassium. However, the concentration of sodium must not be too high.[2]

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