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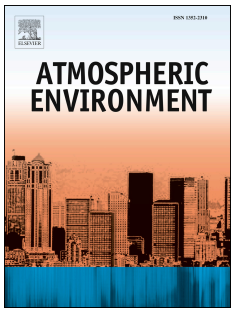

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Characteristics of GHG flux from water-air interface along a reclaimed water intake area of the Chaobai River in Shunyi, Beijing

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Abstract: Reclaimed water has been recognized as an integral part of water resources to improve the river ecological environment and recharge the groundwater in China due to severe water shortage and pollution problems. However, the knowledge of greenhouse gas (GHG) fluxes from a reclaimed water intake area is very limited. Understanding GHG flux variable characteristics in a reclaimed water intake area is fundamental for estimating their impact on urban climate. This study investigated the spatio-diurnal variations of GHG fluxes at the water-air interface from the Jian River to the Chaobai River through the 'static chamber' method, and the environmental variables influencing GHG emissions were analyzed. The results showed that the average fluxes of CO_2 from the Jian River and the Chaobai River were 73.46 $mg(m^2 \cdot h)^{-1}$ and -64.75 $mg(m^2 \cdot h)^{-1}$, respectively. CO_2 was emitted the most in the Jian River, but it was absorbed from the atmosphere in the Chaobai River. Unary linear regression analyses demonstrated that Chlorophyll *a* (Chl *a*) and pH variation controlled the carbon source and sink from the Jian River to the Chaobai River. The diurnal variation of CO_2 fluxes was higher at night than in the daytime in the Jian River, and it was the inverse in the Chaobai River, which highly correlated with