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Particulate associated nitrification and N2O production along Changjiang plume

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We separately measured nitrification rates associated with particle and particle-free (bulk and 3μm filtered water sample) along Changjiang plume in 2011 August. $^{15}NH_4$ spiking method was applied and the production of ^{15}N in N_2, N_2O and nitrate plus nitrite pool were determined. The bulk nitrification rate varied in a wide range from $0.72 \sim 973.25$ nMday^{-1}, which accounts for 2.37$\sim$33.68% of oxygen consumption per day. Particulate associated nitrification contributed 62.7$\pm$48.9 % of bulk nitrification. Rate of particulate associated nitrification was positively correlated with apparent oxygen demand (AOU) and total suspended material concentration (TSM) suggesting that particle associated nitrification is tightly coupled to decomposition of particulate organic matter. On the other hand, non-particulate associated nitrification was negatively correlated to AOU and TSM. N_2O producing rate via nitrification significantly increased with TSM highlighting the importance of N_2O emission from turbid river.