

Dynamics of dissolved nitrogen in intertidal groundwater

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To clarify dynamics of dissolved nitrogen in intertidal groundwater, we observed subsurface flow and dissolved nitrogen with tidal variation, using piezometer method. We installed a pair of piezometers with various depths at some plots on a intertidal in Omaehama Beach and Etajima Island, measured hydraulic head and collected water at all piezometers at two or three hours interval on October and December, 2006. Water samples were analyzed for Cl^- , $\text{NO}_3\text{-N}$, $\text{NO}_2\text{-N}$ and $\text{NH}_4\text{-N}$ respectively. We estimated the dissolved nitrogen fraction concentration of intertidal groundwater, based on the mixing process of inland groundwater with seawater. We confirmed production and disappearance of Inorganic-nitrogen at a time on every tide level at Etajima Island. It was suggested that ammonification and denitrification process. On the other hand, ammonification and denitrification occurred on low tide but nitrification of Ammonium-nitrogen and Nitrite-Nitrogen occurred as a result of seawater recharged by rising tide at Omaehama beach. We confirmed the production and disappearance process of dissolved nitrogen at a time and dynamics of dissolved nitrogen fraction transform by water mixing process with tidal variation in intertidal groundwater.