



DIC DYNAMICS IN A TROPICAL ESTUARY (KIDOGOWENI, KENYA)

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The Kidogoweni estuary (Gazi Bay, Kenya) was sampled in July 2003 for dissolved inorganic carbon (DIC) and ancillary data. The partial pressure of CO₂ (pCO₂) values ranged from 1480 to 6400 ppm and the computed air-water fluxes ranged from 1 to 400 mmol m⁻² d⁻¹. The integrated air-water flux for the whole estuary converges to a value of 96 mmol m⁻² d⁻¹. These results are discussed in relation to other tropical and temperate estuaries. DIC and Total Alkalinity (TAlk) in the Kidogoweni estuary showed strong non-conservative behaviour along the salinity gradient. The slope of normalized TAlk versus normalized DIC is close to the one predicted if denitrification was the main process controlling these variables. We can conclude that the flux from the sediments of TAlk generated by denitrification is the main process that increases TAlk in the Kidogoweni estuary.