Biosphere Atmosphere Exchange of Hydrogen Sulphide and Its Feedback to the Regional Aerosol Formation at Sundarban Mangrove Ecosystem, NE Coast of Bay of Bengal, India

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Biogenic sulfur gases emission from the natural sources are reported to be equivalent to anthropogenic emissions (Andreae and Jaeschke, 1992; Bates et al., 1992), this natural sources have a substantial impact on the global sulfur cycle (Istvan and Delaune, 1995). Dimethyl sulphide, Hydrogen sulphide and carbony sulphide are the precursor for non-sea salt sulphate formation in aerosol (Castebrunet et al, 2009). Efforts have been made to quantify the exchange of hydrogen sulphide between Sundarban mangrove ecosystem and atmosphere from January to December, 2009. The Sundarban mangrove forest acted as a net emitter of H_2S with a mean rate of 32.01 ± 10.51 μg S m^{-2} h^{-1}. Dissolved Iron, $SO4^{2-}$/Cl ratio in the pore water, soil organic carbon etc. showed significant correlation with H_2S emission. The total turn out of H_2S from the Sundarban mangrove ecosystem was calculated to be 1.20 ± 0.58 Tg S y^{-1}. Emission flux of H_2S from the anoxic mangrove sediment showed significant correlation with the different modes of non sea salt sulphate in the aerosol particle. H_2S might have significant role to play apart from dimethyle sulphide (DMS) in the cloud forming mechanism in the regional atmosphere at the land ocean boundary of Sundarbans Mangroves.

References

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