

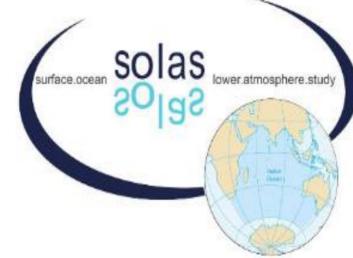


TITLE: C,H,N,S IN SEDIMENT OF BAY OF BENGAL

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Abstract

Spatial distribution of Carbon, Hydrogen, Nitrogen and Sulfur were measured from sediment of northern coast of Bay of Bengal (BoB). Values are in percent relative to dry weight. Surface sediment sample were used to measure enlisted parameter. Significant enrichment of Nitrogen (N%) were found in sediment of northern BoB following lowering trend to Carbon (%), Hydrogen (%) and Sulfur (%) content. Trend of enrichment were found as N(%) > C(%) > H(%) > S(%). Analysis revealed for low CN ration ranging from 0.157 – 0.422 and a relatively high in case of CH ratio from 1.376 – 10.289. Enrichment of Nitrogen perhaps comes from both terrestrial load of river flux following towards BoB and oceanic deposition, however required further investigation.

Keywords: Carbon, Hydrogen, Nitrogen, Sulfur, Sediment, BoB.

INTRODUCTION

Immense river runoff in BoB region have disproportionately large contributions to the global transport of suspended load by rivers to the ocean (Milliman and Meade, 1983). This sediment load has a significant contribution in element regeneration of water column therefore have impact on element enrichment of sediment. In the study of Muller, 1977 in central pacific revealed that both, organic carbon/total nitrogen ratios (ranging from 3.9–1.3) and organic carbon/organic nitrogen ratios (5.6–1.9) decrease with increasing sediment depth, the latter indicating a real enrichment of organic nitrogen compounds during diagenesis relative to total organic matter. Present investigation indicate for enrichment of nitrogen in surface sediment of northern BoB and carbon is lower relative to nitrogen content.

OBJECTIVES

- Observe spatial distribution of C, H, N, S in sediment of coastal BoB.
- Identify sediment enrichment of matter as BoB receive large nutrient load from river discharge.
- As there is lack of reference data of selected matter closed to Bangladesh coast so, aim was to have a reference value through this analysis.

MATERIALS AND METHODS

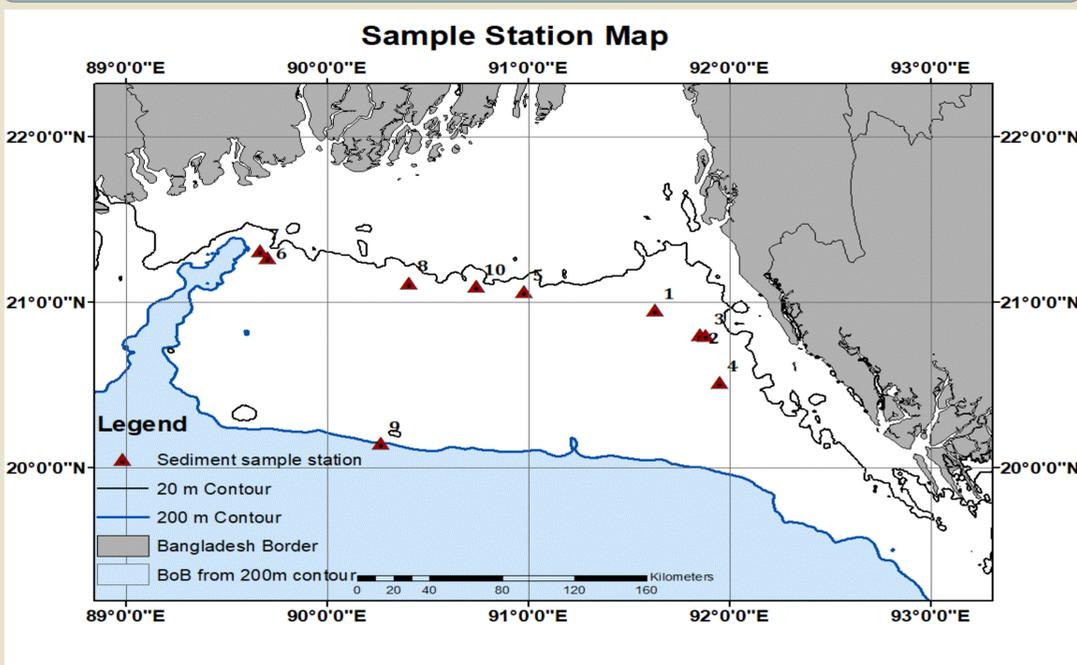


Fig 1. Diagram showing sample station map. Surface sediment were collected using van veen grab sampler.

Sample were collected during a routine fishing operation of ship of Sea Resource limited. Sediment were collected from 10 different station during the month of January – February 2016. Moist sediment sample were dried first and then the analyses were carried out with CHNS elemental analyzer, varioMicroV1.6.1, GmbH, Germany.

RESULT AND DISCUSSIONS

Percent relative to dry weight

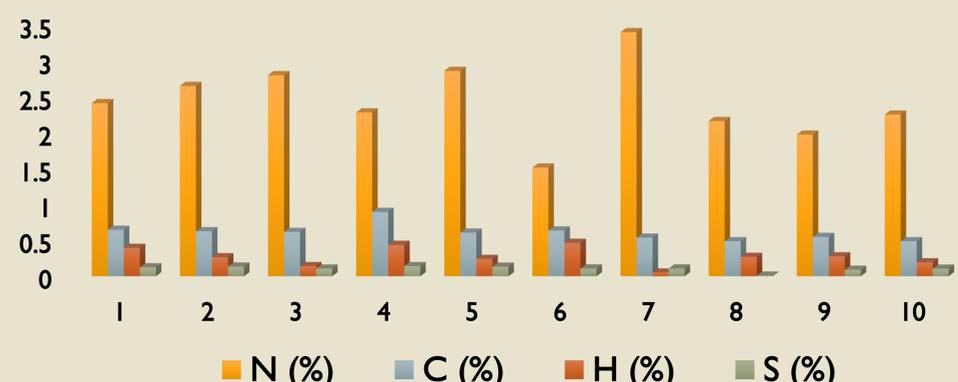


Fig 2. Concentration of N (%), C(%), H(%) and S(%) in each sediment sample at percent relative to sediment dry weight.

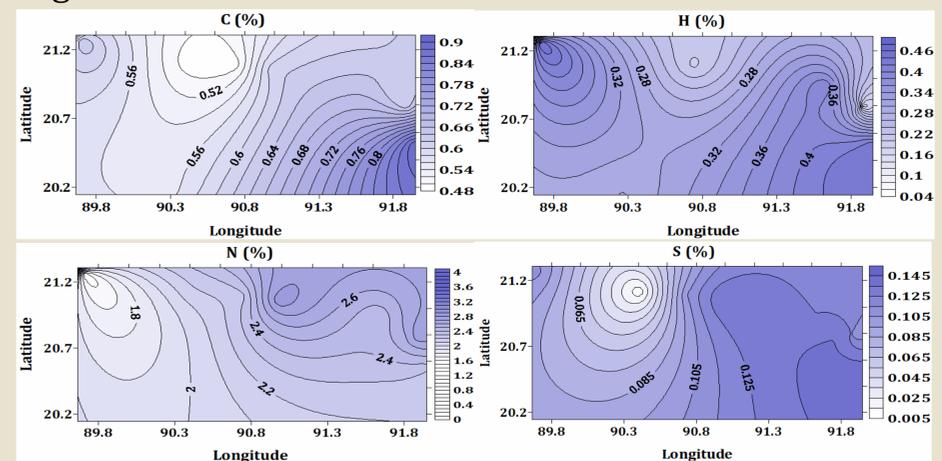


Fig 3. Spatial distribution of N (%), C(%), H(%) and S(%) in sediment sample along 89.6° E–92 °E and 20 °N–21.5 °N. Nitrogen value were ranged from 1.52 – 3.41, Carbon 0.49 – 0.65, Hydrogen 0.142 – 0.467 and Sulfur 0.008 – 0.142. CN ratio ranged between 0.157 – 0.395 and CH ratio ranged between 1.376 – 10.289. Figure 2 indicate high enrichment of nitrogen following carbon enrichment and lowering to hydrogen to least concentration of sulfur. Spatial distribution (fig. 3) revealed for a enrichment of matter towards north-eastern coast compared to north - west part. As there is scanty of data closed to Bangladesh coast to compare with, value of this study of selected element can be used further reference.

References:

- Milliman, J.D. and Meade, R.H., 1983. World wide delivery of river sediment to the oceans. *J. Geol.*, 21: 1-21.
- Muller, P.J. 1977, CN ratios in Pacific deep-sea sediments: Effect of inorganic ammonium and organic nitrogen compounds sorbed by clays, *Geochimica et Cosmochimica Acta*, vol. 41, Issue.6, Pages 765-776.