Seasonal nutrient dynamics in Bhitarkanika mangroves, East Coast of India

AL. RAMANATHAN AND RITA CHAUHAN

School of Environmental Sciences, Jawaharlal Nehru University, New Delhi -110067 (alrjnu@gmail.com)

The monsoon seasons and human induced alterations involve excessive nutrients input to rivers/estuaries to mangroves-estuaries and open ocean. There is need to qualitatively and quantitatively address the nutrient changes in coastal systems including responses to varying season induced terrestrial and oceanic inputs of organic matter and nutrients, will affect the global carbon cycle and the trace gas composition of the atmospheres. So it is imperative to assess responses of coastal systems to global change that will affect the habitation and usage by humans of coastal environments. In order to reveal these impacts it is essential to have a better understanding of the ecological, biogeochemical and biogeomorphological processes controlling the nutrients in these coastal zone. The present study attempts to synthesize the seasonal variations and its contemporary fluxes of nutrients into and out of the coastal zones, deltas and the coastal ecosystems of this part of Indian subcontinent. The water, TDS and nutrient budgets were constructed for Bhitarkanika mangrove ecosystem and analyzed for net biogeochemical performance. The surface water samples and suspended sediment samples were collected in pre-monsoon, monsoon and post monsoon season and were quantified for inorganic nutrients. The spatial and temporal variation in the concentration and the residence time of the water was low with positive dissolved solid flux. Overall, this mangrove ecosystem acts as a source for nutrients during the pre-monsoon and post-monsoon season while in monsoon it acts as sink for nutrients.

Origin of the carbonate bodies in the mantle peridotites of the northern Semail ophiolite

SULAIMAN ALAABED

Department of Geology, Faculty of Science, UAE University, P.O. Box 17551. Al-Ain, United Arab Emirates

Ophiolite is known as a section of igneous mantle and crustal rocks. However, carbonate bodies form a noticeable signature in the mantle sequence of some ophiolites. In the northern Semail ophiolite, they are distributed more or less all over the mantle sequence, but more pronounced at the lower part of the sequence. They primarily occur as veins and fillings along fractures and fault zones. Magnesite and dolomite are found to be the most common occurrences in area. High to low temperature alteration, rock compression and squeezing related solution, and infiltrating meteoric water are suggestions previously proposed for the origin of similar carbonate bodies. In this study, weathering and hydration of the peridotite country rocks have been evidenced from the field and petrographic observations. Ion exchange between country rocks and water invasion is indicated in the chemical composition of these carbonates and their ultramafic associates. Then, isotopic composition clarify the line of evidence to suggest syn-emplacement hydrothermal seawater weathering origin for the existence of the carbonate bodies in the mantle sequence of the northern Semail ophiolite.