denoting the variations of monsoon effective precipitation for the enclosed lake. The highs of resistant elements such as Al_2O_3, SiO_2, TiO_2, ($FeO+Fe_2O_3$), MnO in the sediments corresponds to the depressed chemical weathering and weakened monsoon effective precipitation, while the highs of mobile and easy soluble elements such as MgO, CaO, Na_2O reflects the enhanced chemical weathering and increased monsoon effective precipitation in the lake basin. Whereas the behaviors of major elements in the sediment from the Yangtze River delta, Eastern China were largely controlled by both changes of sea level and the monsoon precipitation. The relatively highs of Al_2O_3, TiO_2, ($FeO+Fe_2O_3$), K_2O in marine-influences sediments suggest relatively strong hydrodynamics status and chemical weathering, and vice versa. The lows of SiO_2, Na_2O and CaO in sediments of terrestrial origin denote relatively strong hydrodynamics and chemical weathering due to the enhanced monsoon precipitation, and vice versa. Sedimentation environment should be taken into account when achieve a full understanding of their climate implications.

Nutrient transport from the Ganges (Hoogly) estuary

R.RAMESH

Institute for Ocean Management, Anna University,
Chennai 600 25, India
E-mail: rramesh_au@yahoo.com

Rivers play a major role in transport of terrigenous sediment and water to continental margins and thus exert an important component in coastal evolution. It has been estimated that the major rivers of India discharges about 2100 km^3 of water and about a billion tons of sediment annually. However, little information is available on the fate of nutrients in the estuarine-ocean continuum. In this study, an attempt has been made to calculate the flux of DIC, DIN (NO_3, NO_2, and NH_4) from the Hoogly estuary and the first delataic offshoot of the Ganges to the adjacent Bay of Bengal. This river flows through the western part of the Sunderbans mangroves. The study shows that the estuary is characterized by high suspended sediments due to high sediment input from the upstream Ganges and also due to continuous mixing. A positive correlation has been observed between pCO_2 and POC. The suspended sediments are rich in organic carbon and fuel hetrotrophic processes resulting in higher pCO_2 concentrations. The first order fluxes of N and C from the Hoogly estuary shows to be several factors higher than that of the contaminated rivers of the world.

Environmental hazard of alluvial gold mines in West-Kalimantan, Indonesia; its problem and an effort of reclamation

S. AZIZ

Geological Survey Institute
E-mail: saziz@grdc.esdm.go.id &
aziz_geologist@yahoo.co.id

An alluvial gold mine was introduced by Chinese people who came directly from China since 4 th centuries in West- Kalimantan. Since then this region become the most important gold alluvial produces in Indonesia. Digging out soil and sand from river bars and panning it in the stream are the initial problem resulted in environmental hazards of alluvial gold mines. Before 1965, they mined by digging out sand materials using plug and panned them. They produce only one cubic meter soil and sand per day. Besides, collecting gold by using mercury, in some places the local miner's are also picking diamond when sometime found amongst the grain.
Technology is quickly developed, and since 1970s many local people used sand pump for mining alluvial gold. A small pump machine of 2 HP was the first time used for alluvial gold mining as water gun for breaking soil or sand and put it into sluice box. Nowadays, 40 200 HP machines are used for this purpose.
Using this kind of equipment, one group of gold miners can remove 100 200 m^3 sand or soil in a day. If one area of mine site at least there are 20 units of machine. It means 2000 m^3 of sand or soil can be removed everyday from the ground to surface and dump them as tailing to somewherelse destroying many of vegetation and biological lives surrounding area. Thousand of hectares of fertile land surfaces; including rubber trees and paddy field, have been destroyed every months by these local miners. It can be imagined how many hectares of fertile soil will be destroyed every year, and who knows 10 years latter?
This paper will discuss what likely the geological information is required to manage and restrict the widespread destruction of the fertile land and its ground and surface water resources.

Depositional process and feature of the alluvial basin of the Echigo plain of Niigata, central Japan-analysis of the drilling core in the central part of the plain