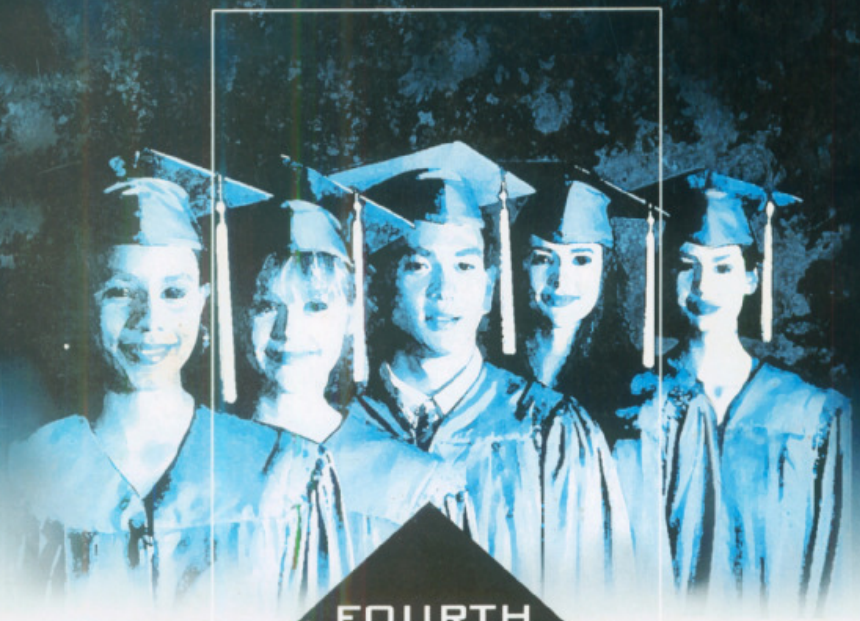
Abstracts of Papers



FOURTH RESEARCH SESSIONS

FACULTY OF GRADUATE STUDIES

Theme:
Knowledge Transfer for
National Development.

28 February 2003

University of Sri Jayewardenepura.
Nugegoda, Sri Lanka.

Proceedings of the Fourth Research Sessions 2003. Published by the Faculty of Graduate Studies, University of Sri Jayewardenepura, Nugegoda, Sri Lanka.

CHANNEL PATTERN CHANGES IN THE KELANI - KALU RIVER SYSTEMS: EVIDENCE FROM THE WESTERN CONTINENTAL SHELF OF SRI LANKA

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Many palaeo sea evel researches on Pleistocene Epoch indicate that during the last glacial maximum (18,000 years B.P.) the sea level was about 100 m lower that at present. Hence the present continental shelf of Sri Lanka had been an emerged landmass in the past. The entire shelf area was exposed, soil had developed and palaeo river channels incised into the bedrock. Beaches, similar to the present beaches would have formed on the outer shelf. During this prolonged period of lower sea level between 18,000 and 12,000 yr. B.P., sediments had been discharged to the shelf edge thus depositing a thickening sediment wedge on the outer shelf.

The width of the exposed landmass varied. The 100-fathom (120m) isobath at the present day was 30 km offshore and the 50m isobath was approximately 10 km offshore from the present day shoreline. Along the west coast, the 100m isobath line had stretched about 10 km west of the Kalpitiya Peninsula and the exposed landmass was narrow. From historical, geological and archaeological points of view, this present day submerged shelf has great potential for palaeo geographic and prehistoric research
Numerous materials such as raised marine deposits, coastal barrier sands, beach rock, ooids, corals and reefs, coralline algae, marine notches, submerged forests, marine molluscs etc. have been used from different locations in the study of worldwide sea-level changes. Using some of these materials such as coastal barrier sands, beach rock, inland coral and shell deposits as indicators, the Holocene sea-level changes in Sri Lanka. In addition to the indicators mentioned above, bathymetric charts are very significant in the study of submerged relief of the continental shelf. Therefore, in this paper, the bathymetric charts are used to show palaeo relief on the exposed land mass along the west coast in Sri Lanka during the LGM, ca 18,000 yr B.P.

Bathymetric charts indicate that the Panadura Canyon is a very narrow and a distinctive feature on the western continental shelf of Sri Lanka. The 50m-isobath line, at the top of the canyon, is about 8 km away from the present shoreline and it is inclined sharply up to 1000m within 18 to 20 km. The isobath lines between 1000m and 1500m show a concave shape and have a distance more than 40 km from the edge of the canyon. Northwards and southwards of the Panadura canyon, the continental area widens to nearly 20 km. No such canyons or steep slopes had developed in front of the present river mouths of Kelani and Kalu systems. Further, the present Panadura river does not supply a considerable volume of terrestrial water as the Kelani and Kalu river systems. It can be surmised that the Kelani and the Kalu rivers were two main branches of a single river, which had flowed through the Panadura Canyon via the Bolgoda Lake System. When the Post-Glacial Maximum (PGM) occurred, the exposed landmass gradually submerged forming the Panadura sand barrier and Bolgoda Lake systems. As a result Kalani and Kalu rivers emerged as two distinctive river systems.