

## **Coastline changes detection and analysis using Remote Sensing Technology**

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Sri Lanka is an island surrounded by the Indian Ocean and possesses a significant coastal zone with valuable resources. The coastline of the country was challenged to regular deformation due to rapid development activities. A proper monitoring system was required for the protection of the coastal zone from human and natural interventions. The current practice for data collection in such an assessment was a ground based beach profile survey. But, it is a labour and time intensive procedure for rapidly changing coastal zones. Therefore, this study was carried out for checking the feasibility of coastline changes detection and analyzing using remotely sensed data.

QUICKBIRD, IKONOS and LANDSAT multi temporal pan sharpen satellite images and LIDAR images were used to detect the changes in southern coast in Sri Lanka. The multi temporal positions of shorelines were acquired using segment base unsupervised image classification approach. It was successfully identify the sediment budget along the coastline in different time periods. The positional and temporal variation of coastline was analyzed in qualitatively and quantitatively base on high waterline, vegetation line and sediment budget. The rate and trend of coastline variation was estimated as a final result. The vulnerability of coastal zones were delineating with this calculated parameters. This study revealed that multi temporal remote sensing data can be used directly for monitoring such a dynamic environment. Finally, it is recommended that high temporal resolution remote sensing images with regular time series will emphasize the expected results.

**Keywords:** coastline, change detection, image segmentation, remote sensing

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