

# **DIGITIZING SCANNED SEISMIC SECTIONS AND PREDICTING THE SEDIMENTARY THICKNESS OF THE SOUTHERN AND NORTH EASTERN INDIAN OCEAN REGIONS ADJOINING SRI LANKA**

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Petroleum exploration in Sri Lanka began in late 1960s and the petroleum database of the region is managed by the Petroleum Resources Development Secretariat (PRDS). Extensive work has been carried out in both Cauvery and Mannar basins and recently interest regarding the Lanka basin has also escalated. However, the exploration work is hindered by the lack of data in the region. Freely available satellite gravity and magnetic data suggests that Lanka Basin could have the necessary components for the occurrence of hydrocarbon, but without seismic data this theory cannot be proven further. Also currently our country is in a process of justifying its claim for a larger area of the Bay of Bengal where the seabed could be potentially rich with mineral and hydrocarbon resources. Proving the required criteria for this claim needs to be justified using seismic data in the region as well. As an alternate to plan seismic surveys, which involves large costs and extensive national planning, a study using vintage seismic data acquired in the past may provide useful information about the region as well. National Geophysical Data Center (NGDC) has a database of free integrated geophysical surveys around the world. Bathymetry, gravity, magnetic and seismic data related to the study area was obtained through the NGDC website. These data contained ASCII files with seismic navigation data and scanned seismic images in JPEG or TIFF formats. The navigation data were obtained from the ASCII files and were merged with seismic shot points using Arc GIS. The images were converted to SEG-Y using SeismiGraphix and Adobe Photoshop and Advanced TIFF editor was used to filter out noise from the images. Then these two sections were integrated in the IHS Kingdom software and created the seismic databases within it. Then all the available ship born gravity, magnetic and bathymetry details were integrated to enhance the database. Using the seismic lines the depth to seabed and the basement can be interpreted in Two Way Time (TWT). Once interpretations were done, these data can provide valuable information about the sedimentary thickness, seamounts, trenches and other geological structures in the region.

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