

STUDY OF THE SHALLOW AND DEEP RESISTIVITY STRUCTURE OF NELUMWEWA HOT SPRING

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Nelumwewa hot spring is located in the North Eastern part of Sri Lanka, in the Vijayan Complex approximately 10 km to Highland and Vijayan Complexes boundary. Modelling the subsurface of the hot spring field is vital to study and understand the hot source, hot water reservoir and the hot water paths in the geothermal field. In the present study near and deep resistivity structures were studied using the Time domain electromagnetic (TDEM) method and Magneto telluric (MT) method respectively. In the resistivity profiles both in TDEM and MT hot spring is located near to the geophysical survey site 03. In the MT profile approximately 5 km thick, 5 km long low resistive zone is observed from hot spring region to south Western (SW) direction. In the TDEM profile also low resistive zone is observed towards SW direction from the hot spring area. These low resistive zones in both near and deep resistivity profiles might represent the hot water reservoirs and hot water percolating paths connected by the deep-seated fracture systems. Shear zone is marked in the geology map of the area in SW side from the hot spring. Hence low resistive zones indicated in both MT & TDEM resistivity profiles, interpreted as hot water reservoir and hot water percolating paths which feeds the Nelumwewa hot spring in this study, possibly originated in the shallow and deep fractures formed in the shear zone.