

G M Fonseka

*Dept of Physics, Open University of Sri Lanka, Nawala, Nugegoda*

Maha-Oya thermal spring is located in the Ampara district. It is within the (eastern) Vijayan complex where the geology is considered to be Precambrian. The thermal waters which are saline ( $1400 \text{ mSm}^{-1}$ ) emerge from rock basement at a surface temperature of  $56^\circ\text{C}$ . Air photos indicate most of the regional faults and lineaments striking NW-SE and NE-SW. 5 Dipole-dipole resistivity profiles were carried out along the same 1.0 km NE-SW traverse towards NW of the group of thermal springs.

The resistivity equipment (Oya Corporation, Japan) is capable of delivering a maximum output of 450V, 0.5A in pulsed D.C. mode. The measurement procedure of ground resistance is microprocessor-based and takes into account self-potential and telluric effects. The measurement was set for a 4 cycle signal averaging mode. Consistent readings on repeated measurements were noted. The dipole-dipole centre to centre separation was kept constant in a given profile but were increased from 100m to 500m in successive profiles to obtain greater depths of investigation. At larger dipole-dipole separations the measurement sensitivity had to be improved by increased dipole length and/or increased input current.

The measurements were initially used to construct an apparent resistivity-pseudo layer map. A DOS based computer programme RES2DECO was used for processing and automatic inversion of profile section readings to obtain a resistivity depth map. Both maps show an inclined boundary close to the thermal spring. The model presented upto a depth of  $\approx 150\text{m}$  does not show any region of very low resistivity that is generally encountered with saline fluids in highly porous rock. However a boundary region of resistivity  $\approx 130 \Omega\text{m}$ , adjoining a higher resistivity  $\approx 400 \Omega\text{m}$ , region that dips SW is indicative of a fault/lineament zone. Thermal water could follow this boundary in narrow tubular passages. This will not make the bulk resistivity of the boundary layer very low.

Financial assistance by NARESA (Research grant RG/94/EP/02) and equipment and field assistance by the National Water Supply and Drainage Board is acknowledged.

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