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Soil and groundwater salinity variation in Matara district coastal belt- Sri Lanka

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The present research study identifies changes in salinity of soil and groundwater in tsunami affected and unaffected areas in Matara district. Within study area a total of 21 auger holes were drilled representing both tsunami affected and non-affected areas. The auger holes were distributed within approx 0.5 to 0.7 km distance from the coastline. Auger holes are selected to maintain perpendicular transects to the coastal line. From each auger point, soil samples were taken from the surface layer and followed by each 50 cm depth until groundwater table is reached. Groundwater samples were also taken from auger holes and from dug wells near to auger holes. Soil physical parameters such as specific gravity, soil moisture, were determined. Soil chemical parameters such as pH, electrical conductivity (EC), total dissolved solids (TDS) and salinity were measured using pH and EC meters. The electrical conductivity (EC) of the soil in the tsunami affected area varied from 100 $\mu\text{S}/\text{cm}$ to 422 $\mu\text{S}/\text{cm}$ and groundwater salinity changed in between 400 to 2000 $\mu\text{S}/\text{cm}$. A direct relationship between EC and soil depth was detected. The prepared maps confirm that soil salinity, pH and EC variations were directly related with groundwater salinity. Additional salinity levels are related with morphological factors and soil physical parameters.

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