

Some preliminary results of the fine structure profiles of radio refractivity near the surface at Ota, Southwest Nigeria

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Some preliminary results are presented of the fine structure profiles of surface radio refractivity, N_s , over Ota, Southwest Nigeria ($6^\circ 42'N$, $3^\circ 14'E$) computed from in-situ, one minute interval measurements of surface pressure, temperature and relative humidity. A wireless Davis Vantage Pro2 Weather Station instrument installed at the Department of Physics, Covenant University, Ota in April 2012, was used to obtain the measured variables. Hourly, daily and monthly average values of surface water vapour density, dry, wet and total radio refractivity were obtained for the months of April 2012 to March 2013. The distance to the radio horizon for a given transmitter height may be deduced from the observation that N_s is well correlated with the gradient of refractivity over the first kilometer above ground. Refractivity gradients utilized for the work were those obtained in a previous work for Oshodi, a meteorological weather station near the coast and close to Ota.

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