



CHARACTERIZATION OF SLAB-THICKNESS AND B_0 PARAMETER AND COMPARISON WITH IRI MODEL OVER AN EQUATORIAL STATION IN AFRICA

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The present study investigates the simultaneous morphologies of slab-thickness (τ) and thickness parameter (B_0) over an equatorial region of Ilorin (8.50N, 4.68E; dip lat. 2.95) during a low solar activity of the year 2010. Apart from daytime signatures of the τ and B_0 that are not primarily influenced by PEC, we found that between two to three hours in the pre-sunrise and dusk periods are mainly controlled by PEC that evolved as huge peaks in the τ and B_0 . Also, our investigation reveals that the B_0 profile is thicker than the τ profile during the pre-sunrise in June which may indicate partial flow or halt of PEC. The result revealed approximately the same values of τ and B_0 around the sunrise period that may be due to the absence or small PEC contributions. We found a significant association between τ and B_0 with the highest coefficient value observed during the June seasons that indicates the possible prediction of τ in the absence of B_0 . The validation of International Reference Ionosphere (IRI) model with observed τ and B_0 revealed appreciable discrepancies between the model and observed values, particularly between the IRI- τ and observed τ values that indicates a higher percentage of changed difference in all hours of the months. Our result in November and December revealed the underestimation of IRI- τ with respect to observed τ value as reported in the validation of IRI- τ in all regions.