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Comparison of ionospheric equivalent slab thickness with bottomside digisonde profile at mid-latitudes

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A comparison of the diurnal and seasonal variations in the ionospheric equivalent slab thickness (τ) and bottomside slab thickness (B_0) is presented based on the observation during high solar activities at a mid latitude station, Wuhan (114.4E, 30.6N). The investigated data include foF2, hmF2, B_0 , B1 and TEC are derived from the measured ionogram and GPS receiver over Wuhan from April 1999 to March 2000, respectively. The results show that τ and B_0 are highly/weakly correlated during the day/night, respectively. Furthermore, a comprehensive discussion of the relation between τ , B_0 , and hmF2 for the geomagnetic storm event is provided in this investigation.

Keywords: equivalent slab thickness, Ionospheric dynamics, B_0 , GPS, mid-latitudes