

TEC variations at GPS stations over high-latitude and at the equatorial region

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ABSTRACT

This paper analyzes and compares TEC measurement at GPS stations belonging to UKM installed at Husafell, Iceland (64° 40' N, -21° 1' E) in the high-latitude and UKM (2° 55' N, 101° 46' E) in the equatorial latitude. A high performance dual-frequency GPS receiver with choke-ring antenna was used in this study. GPS data for the whole year of 2009 were used in this analysis. BGS's Bernese Processing Engine (BPE)'s precise point positioning (PPP) mode was used to generate TEC at the single station with the zero-difference technique for differencing level of choice. Comparison of the maximum value of TEC between Husafell, Iceland for high-latitude and UKM, Malaysia for the equatorial region was carried out. Results show that the maximum value of TEC at high-latitude reaches its maximum at post local noon which is similar to that over the equatorial region. TEC values reach their maximum at 13:00 UTC at Husafell while at UKM it is at 06:00 UTC (14:00 LT). It is observed that TEC at UKM's equatorial station is approximately twice compared to the Husafell station.

KEYWORDS:

TEC; GPS; Ionosphere; Equatorial Region

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